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Pneumonia and Tuberculosis Among Industrial Workers and Their Dependents*

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SIX years ago, after 5 years of compilation, a preliminary report was made on this study before this Section. The report was made at that time because it was felt that certain conclusions were warranted as tending to upset rather prevalent ideas regarding the influence of some specific occupational hazards in connection with underground employment.

It was suggested at that time, that such a study to be of value should cover a large number of individuals or extend over a longer period of time.

It is significant that although the present report embraces a period of 11 years, against 5 years of the preliminary study, and includes 3,780 cases of pneumonia with 739 deaths, against 2,603 cases and 238 deaths, the fatality rates in the various groups remain to all intents and purposes unchanged. It may be also noted that the relative fatality rate in any given group for any single year is almost identical with that of any other single year, group of years, or the whole.

There is need for intensive study and research, much of which should be of a statistical nature, before the exact influence of so-called industrial hazards is understood. It is believed that a great many of the existing state compensation laws are far in advance of precise knowledge, being based upon what some individual believes to be true though that individual may or may not be in possession of sufficient knowledge of the subject to entitle him to an opinion.

It is well within the responsibility of the membership of the Industrial Hygiene Section of the American Public Health Association to make needed studies, placing the knowledge so gained at the disposal of those who may find themselves responsible for legislation intended to protect industrial workers. It should be remembered that industry

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also, if it is to survive, must be protected from unjust claims.

No individual or group of individuals is more alive to the need for protecting the workers' health, and the prevention of industrial accidents, than those who make up the motivating force of industry. The disabled workman, whether from illness or accident, is a liability expensive to the industry. It is a duty devolving upon this body to point out to industry the existence of hazards, and you may rest assured that industry stands ready with an appreciation of substantial character for all worthy effort in this direction. Notwithstanding recent governmental interest in the welfare of industrial workers, it is almost certain that the interest of industry would render protective legislation superfluous in the presence of exact knowledge of its needs.

In obtaining population figures for some of the groups included in this study it has been necessary to use estimates. The number of workers can be obtained from pay roll figures. The number of dependents has been arrived at by assuming 3 for each wage earner. This is believed to be conservative inasmuch as a reciprocal of from 3.10 to 3.25 has been variously used in authoritative statistical studies.

Our population, averaging slightly more than 77,000 persons over the period covered by this study, is divided into:

1. Dependents: All males under 16 years and dependent females of all ages
2. Surface Workers: All employees whose duties are above ground
3. Coal Miners: All underground workers in the coal mines
4. Ore Miners: All ore mine employees whose duties are underground during the working shift

A great deal of thought has been given, since the observations of Ramazini (1703), to the influence of exposure of miners to a dust laden atmosphere. Assumptions have been made many times as a result of pure speculation. Probably the most valuable additions to exact knowledge in recent years have resulted from studies made by Sayers and his associates of the U. S. Bureau of Mines.

Our company operates a number of soft coal mines in which all undercutting is done by machines equipped with a water spray directed at the point of cutting units. The coal is shot down, and shots are tamped with clay. Haulage ways are covered with crushed open hearth slag which is kept damp by sprinkling. Practically the only dust is that which results from handling coal in loading.

No readily observed dust is present in our coal mines, yet that dust is in the atmosphere, is demonstrated on the faces, arms, and hands of those who have spent a working shift underground. The same holds true in our red ore mines. Notwithstanding every effort to prevent dust it is present as is demonstrated on the clothing and persons of all who work inside.

Pneumonia Incidence: Dependents, a group which includes 75 per cent of our population, have given us 69.9 per cent of the pneumonia cases.

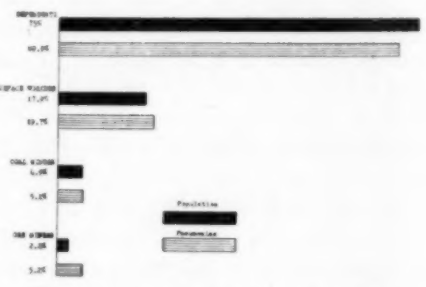

FIGURE I—*Comparative Population and Pneumonia Case Distribution by Occupational Status*—In this chart an attempt has been made to show relatively the proportion of total population in each group together with the percentage of total pneumonia cases occurring in each group.

Surface employees, constituting 17.9 per cent of the population, have contributed 19.7 per cent of the cases.

Coal miners who make up 4.9 per cent of the population have contributed pneumonia cases in almost the same proportion as they bear to the population, with 5.1 per cent of the cases.

Ore miners, on the other hand, while only accounting for 2.2 per cent of the population, have furnished 5.2 per cent of the pneumonias—more than twice the number of cases to which their relative number alone entitles them.

Fatality Rates: There is apparently no relationship between the frequency with which a given group has shown itself susceptible to pneumonia and the regularity with which death occurs among those in that same group who have the disease. Surface employees, for instance, considered as an occupational group, including both white and colored, with an incidence only slightly above what might have been expected, have had a fatality rate, expressed in number of deaths per 100 cases, of 30.7, the highest of any group. Coal miners have died at a rate of 26.8 per 100 cases, while ore miners had a fatality rate of 24.8, the lowest of any wage earning group.

A further breaking up of these groups

FIGURE II—*Pneumonia Fatality by Occupational Groups*—Eleven Years, 1925–1935—Deaths per 100 cases.

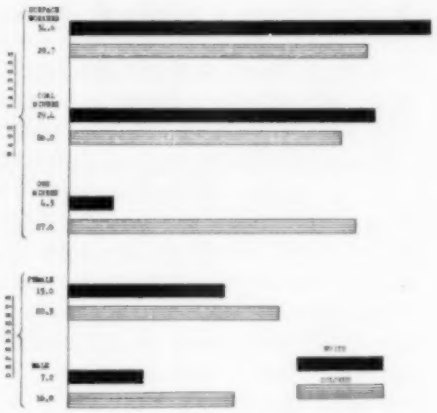

FIGURE III—*Pneumonia Fatality, Occupational and Color Groups*—Eleven Years, 1925–1935—Deaths per 100 cases.

into white and negro presents certain other surprising facts. Surface workers, white, have had a rate of 34.6 against 28.7 for colored.

This appears still more irregular when it is remembered that " white surface employees " embrace school teachers, physicians, superintendents, clerks, accountants, and all skilled workers, while " colored surface employees " include all engaged in the more laborious duties.

White coal miners have had a higher fatality rate than negroes employed at the same work; the rate being 29.4 for white and 26.2 for colored.

Only 1 death has occurred in 11 years in the white ore miner group. It is true the group is small and only 23 cases have occurred, but no other group, including the younger ages, has had 23 successive cases with but a single death. The rate is 4.3 for white and 27.6 for colored ore miners.

With an almost perfect similarity in environmental working conditions which might be expected to influence fatality, it is difficult to understand the disparity between white and colored rates in the same occupational group, or the varying

TABLE I

Tennessee Coal, Iron and Railroad Company
(Health Department)

Pneumonia Cases and Deaths by Age, Sex, Color, and Occupational Groups
Eleven Years, 1925–1935, Inclusive

Age Groups			*Under 1*		*1 to 4*		*5 to 14*		*15 to 24*		*25 to 34*		*35 to 44*		*45 to 54*		*55 to 64*		*Over 65*		*Totals*	
C—Cases *D*—Deaths			*C*	*D*	*C*	*D*	*C*	*D*	*C*	*D*	*C*	*D*	*C*	*D*	*C*	*D*	*C*	*D*	*C*	*D*	*C*	*D*
Non-wage Earners	Male	W	48	13	216	13	217	9	16	1	..	..	..	..	..	..	..	..	..	..	497	36
		B	132	65	340	31	220	14	25	5	..	..	..	..	..	..	..	..	..	..	717	115
	Female	W	47	13	158	9	213	6	42	8	46	10	34	5	30	11	19	10	37	22	626	94
		B	99	36	245	31	153	15	100	19	110	23	58	16	16	9	14	9	10	6	805	164
All Wage Earners	Surface Workers	W	..	..	..	..	..	..	47	12	57	16	58	16	46	14	18	10	28	20	254	88
		B	..	..	..	..	..	..	149	32	166	43	96	28	51	21	10	5	18	12	490	141
	Coal Miners	W	..	..	..	..	..	..	4	..	1	..	12	2	5	1	..	..	12	7	34	10
		B	..	..	..	..	..	..	27	7	68	13	32	9	21	8	10	3	2	2	160	42
	Ore Miners	W	..	..	..	..	..	..	7	..	11	1	3	..	2	..	..	..	..	..	23	1
		B	..	..	..	..	..	..	50	14	67	12	34	11	21	10	1	..	1	1	174	48
Totals		W	95	26	374	22	430	15	116	21	115	27	107	23	83	26	37	20	77	49	1,434	229
		B	231	101	585	62	373	29	351	77	411	91	220	64	109	48	35	17	31	21	2,346	510
Grand Totals			326	127	959	84	803	44	467	98	526	118	327	87	192	74	72	37	108	70	3,780	739

fatality rates exhibited by whites in the different occupational groups, while negroes exhibit a fatality rate varying so little in the different groups as to be of no significance.

Why should white surface workers, for example, have 34.6 deaths for each 100 who have pneumonia and negroes 28.7, while white coal miners have a fatality of 29.4 and colored coal miners 26.2? Or, why should colored ore miners with pneumonia die at the rate of 27.6 per 100 cases while whites only have a rate of 4.3?

Again, whatever influence may have operated to produce a more fatal pneumonia in white workers of one occupation above that of another has been signally impotent in the case of negroes of the same occupational groups.

Colored surface workers have had a rate of 28.7 as against a rate of 27.6 for colored ore miners and 26.2 colored coal miners.

A reduction of the figures so far quoted to deaths per year, per 1,000, in each of the groups studied, tends to give us the picture from a slightly different angle. An average of 57,831 dependents have had 409 of their number die of pneumonia in 11 years, 229 deaths have occurred in a group of surface workers averaging 13,802 persons, while 52 deaths have occurred in a group of 3,778 coal miners, and of 1,696 ore miners 49 fatal pneumonias have occurred.

It has been assumed, with apparent reason, that an etiologic factor which conduces to fatal pneumonia might be expected to exhibit a similar influence on the tuberculosis death rate.

The failure of pneumonia death rates to show a correlation with those from tuberculosis in workers in the same occupational groups has been something of a disappointment.

"All Dependents" have had a death rate, expressed in deaths per year, per 1,000, of 0.643 for pneumonia and 0.337 from tuberculosis. Surface workers have had a pneumonia death rate of 1.508, while their tuberculosis rate has been 0.566. Coal miners have died of pneumonia at a rate of 1.251 and of tuberculosis at a rate of 1.467, and ore miners have had a pneumonia rate of 2.626 against a tuberculosis rate of 1.232.

To express these death rates in a way which makes the picture more vivid: It has taken 1,554 dependents each year to furnish 1 pneumonia death and 2,965 for each death from tuberculosis; of each 663 surface workers 1 has died annually from pneumonia and it has required 1,769 of them to furnish 1 tuberculosis death. Coal miners have had 1 death per year from pneumonia for 803 persons and 1 from tuberculosis for 687, while 385 ore miners have contributed 1 annual pneumonia death it has required 807 ore miners for each death from tuberculosis.

The figures given may serve to disillusion those who may have gotten an impression from the earlier part of this report that a red ore mine was being proposed as a sanctuary for persons suffering from a pneumonophobia.

Nomenclature for the Colon Group*

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THE importance of the aerobic, non-spore-forming lactose fermenting bacteria in the bacteriological examination of water supplies is too well established to require any argument or any apology for this discussion. During the last few years this group of bacteria has acquired importance in the milk industry because of its value not only as an index for the control of pasteurization but also as a tool for use in tracing the source of contamination in milk subsequent to pasteurization.

These bacteria have appeared under a variety of names both in the literature dealing with the practical aspects of water and milk analysis and in systems of bacterial classification.[4, 5, 6] The former use will be considered here, since even the simplest nomenclature satisfactory to the taxonomist is more elaborate than is needful in practical work.

The terms used most commonly in practical work are: "*B. coli*," "*E. coli*." "colon," "colon-aerogenes," "coli-aerogenes," "Escherichia-Aerobacter," "coliform."[1] These words have been used to signify the group of organisms defined "as including all aerobic and facultative anaerobic Gram-negative non-spore-forming bacilli which ferment lactose with gas formation." This definition is intended primarily to include the genera frequently called "Escherichia" or "Aerobacter" and the so-called "intermediate" or "Citrobacter" types; and has been criticised both as being too broad and as being too narrow.

While organisms of the genus Escherichia are generally accepted as an index of sewage contamination, there is discussion concerning the significance of organisms classed as "Aerobacter" and "Citrobacter." In a very general way, bacteria of the two latter groups represent a distinctly less dangerous type of contamination than does the Escherichia group, but practically all investigators find the Aerobacter-Citrobacter group in the human intestines at times. Their presence in the soil is admitted by all. There is unanimity in excluding soil drainage from water supplies unless careful sanitary surveys have shown the impossibility of sewage pollution, a condition too often uncertain of proof. The water sanitarian therefore seems justified in insisting that a satisfactory drinking water should be "relatively free" from the bacteria of these 3 groups. Whether none of the organisms should be found in 10 c.c., 2 in 100 c.c., or none in 500 c.c. does not

* Read before the Laboratory Section of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, La., October 22, 1936.

concern us here except to point out that artificially purified drinking water can be made to conform to more rigid standards than are at present in use and that there is no justification for attempting to separate fecal from so-called non-fecal strains of lactose fermenters in evaluating these treated water supplies. Possibly an exception will have to be made for surface waters treated only with chlorine but this is not a situation to be tolerated except when the surface supply is collected from controlled water sheds and known to be relatively free from pollution.

The usefulness of tests of organisms of the Escherichia-Aerobacter types and so-called intermediates in dairy products has been complicated by a tendency on the part of many workers to carry over the interpretations of results from the water sanitation field into the dairy field. The newer work in the latter field indicates the value of tests for readily identified types of bacteria that should certainly be killed where pasteurization is properly carried out at a temperature of 143–145° F. for 30 minutes. The routine tests for contamination after pasteurization should be of such a character as to identify readily organisms of these types that have been reintroduced. The newer types of plating media such as violet-red-bile-agar and sodium desoxycholate agar are used for the purposes indicated, but the group of organisms that produce acid and show as red colonies is a somewhat broader group than would be covered by the definition quoted above for the Escherichia-Aerobacter group. Where the group referred to is broader than that described above the terminology should be different from that used in water sanitation. It is highly desirable for workers to use terms with more definite meanings than has been the case in the past.

In the field of shellfish sanitation,[8] some workers have felt that organisms of the Escherichia type indicate fresher, more direct and therefore more dangerous sewage pollution than organisms of the Aerobacter type. If such an interpretation of conditions in tidal river waters should prove to be the case, the terminology used in this field should likewise be definite and different from that used in water and sewage sanitation. If reference is made to organisms of the genus Escherichia only, the terminology used should indicate that fact.

In the water and sewage field there has been much discussion over the problem whether organisms of these general types could be classed as fecal or non-fecal. It will be noted that this discussion is quite different from the basic ideas that are important in the dairy and shellfish sanitation fields. In the dairy field it is a question of distinguishing between organisms killed at pasteurization temperature and those that are sufficiently heat resistant to survive these temperatures. In the shellfish field the discussion is over the question whether organisms indicating less immediate pollution, can be ignored. Much confusion is caused in discussions where these facts are not kept in mind. New definitions with different terminology would apparently be called for where a broader, or a narrower group than the one usually accepted for organisms of the Escherichia-Aerobacter type are under consideration.

For some years the authors of this paper have carried on a friendly correspondence concerning the name to be used in the two most important Standard Methods reports that have been stimulated by the American Public Health Association. Each has been able to find real objection to the other's suggestions and arguments, and both botanical and classical friends have been consulted in order to obtain ammunition intended

for the destruction of his opponent's ideas. The whole discussion has tended to clarify the differences in needs and interpretations that should be used in the two related, but quite different, fields of sanitation. The discussion has ultimately led us to the place where we are now able to agree upon a term which apparently meets the needs of workers in the field of water and sewage sanitation, and has the advantage that it is a simple non-technical term, readily understood by men who are not familiar with the technical problems of taxonomic bacteriology. It likewise does away with the use of such terms as "*B. coli*" which in its more complete form of *Bacillus coli* has been discarded by bacteriologists for many years, international agreement having been reached this last summer that the term "Bacillus" is to be limited in the future to spore-forming rods. It does away with the similar and even more objectionable "*E. coli*" which in the last few years has created dffiiculty for certain editors of scientific journals because of the fact that not only *Escherichia coli* but *Entameba coli* are found in fecal matter and they have written out "*E. coli*" in certain manuscripts as *Escherichia coli* when it really was intended for *Entameba coli.*

We jointly suggest that the group as defined above and as used in the field of water and sewage sanitation be designated as the "coliform group" and suggest that sanitarians in the dairy and shellfish fields be very careful to use a terminology that does not either broaden or restrict the definition of the group of organisms included under this term.

One other phase of the general problem seems desirable to mention. The use of the presence of the coliform group as an index of pollution is well established, and no one can doubt that it has played an important rôle in the improvement of water supplies during the past 30 years. There is no reason, however, that we should assume a satisfied attitude and allow our minds to remain dormant in the face of certain very definite facts. In 1931, Veldee[1] reported apparently a water-borne outbreak of gastroenteritis in West Virginia (Oct. and Nov., 1930) during a time when the purified water supply showed a "*B. coli*" index of 0.0. Whether this outbreak was due to the presence of a chemical irritant or to a "bacterium or virus whose presence was not indicated by the established methods of water analysis" is not known. A somewhat similar outbreak in Missouri is being reported at this session by Ziegler.* Very recently, Heathman, Pierce, and Kabler,[2] as a result of studying the disinfecting action of chlorine and chloramines in treated waters have noted the possibility of the typhoid bacillus persisting longer than the organisms of the coliform group, and suggest a reconsideration of the use of this latter group as the sole index for the safety of a water supply. (See also studies by Kriebel.[3]) Such experiences as these cannot be ignored and serve to remind bacteriologists that sanitary analysis is a live issue.

SUMMARY

We suggest the introduction of the term "coliform" to designate the lactose fermenting aerobic bacteria used as a measure of pollution of water. It is hoped that when the same term is applied in milk and oyster examination it will be used with a similar meaning.

We ask your reconsideration of the use of the coliform group as the sole index of dangerous contamination of water supplies. It is possible that some further index may be required to serve as a supplementary aid.

* See March issue of *A.J.P.H.*

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No Typhoid in New York State

FOR the first time in the state's history, New York reports not a single death from typhoid fever during the entire month of March, 1937.

Dr. J. V. DePorte,* director of the Division of Vital Statistics, State of New York, Albany, reported that 30 years ago 117 persons died from the disease during the month of March. Twenty years ago there were 40 deaths, and 10 years ago the number had dropped to 11.

New low rates were established for measles with 0.7 per 100,000 population, and scarlet fever 1.6. The death rate from whooping cough, 1.7, was double the corresponding figure of a year ago. There were 7 deaths from diphtheria, all in New York City, compared with only 2 in March, 1936. —*News Release*, New York State Dept. of Health.

* Fellow A.P.H.A.

Comparison of Solid With Liquid Media as a Means of Determining the Presence of Lactose Fermenting Bacteria in Pasteurized Milk*

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IT is becoming increasingly evident that a test for organisms of the Escherichia-Aerobacter or coliform group is extremely valuable as a means of detecting recontamination of pasteurized milk. Selective media, although inhibiting the coliform group to a certain extent, must be employed to prevent overgrowth by other types. For this purpose many different media have been proposed. Brilliant green lactose peptone bile broth and formate ricinoleate broth are commonly used in this country for work with dairy products.

Detection requires a qualitative, and enumeration a quantitative procedure. A single tube shows whether coliform organisms are present or absent, but when the result is positive gives no indication of the number. If the enrichment method employing liquid media is to give a fairly accurate idea of numbers, it is necessary to employ a total of at least 15 tubes, or 5 tubes each in 3 decimal dilutions so selected that all tubes will be positive in the lowest dilution and negative in the highest dilution. Since an agar plate covers a greater range in numbers than a broth tube, duplicate agar plates yield as reliable a count as 15 tubes. However, this statement is unfair to the dilution method as used under practical conditions since the majority of samples of pasteurized milk examined by public health workers contain less than one coliform organism per ml. Obviously, a negative tube gives as much information as a negative plate. The plate becomes progressively more and more quantitative than the tube as the number of coliform organisms increases.

The preparation of 15 tubes covering 3 dilutions and the converting of results into most probable numbers involves more work than the preparation and counting of 2 agar plates. If a satisfactory agar medium were available, it might be of value under certain conditions.

The purpose of this study was to compare various solid media and to determine those conditions under which it is of value to use a plating procedure in the examination of pasteurized milk for lactose fermenting organisms.

* Approved by the Director of the New York State Agricultural Experiment Station for publication as Journal Paper 205, Apr. 30, 1937.
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RESULTS OBTAINED

Much of the previous work with solid media has been done with dairy products in which coliform counts were in hundreds or thousands per ml., so that it was not necessary to employ dilutions lower than 1:100. It has been shown in the case of many of these agars that the inhibitory power toward Gram-positive organisms was greatly decreased with the increase of concentration of milk added. This limits the usefulness of these media for the examination of pasteurized milk which under present conditions should be free from coliform organisms in quantities at least as large as 1 ml.

In an attempt to find an agar medium which would be practical for the examination of pasteurized milk, 10 agar media were compared with respect to their value for plating 0.1 and 1.0 ml. quantities of milk. These were: Conradi-Drigalski [1] (1902); Endo [2] (1904); Mac Conkey [3] (1905); Ayers and Johnson [4] (1915); Ayers and Rupp [5] (1918); Levine's [6] eosin methylene blue (1918); Chalmers [7] taurocholate (1928); Klimmer's [8] trypaflavine (1929); Noble's [9] ferrocyanide citrate (1932) and Leifson's [10, 11] desoxycholate agar (1934 and 1935). Comparisons were made on 25 samples of raw milk delivered by producers to a local pasteurizing plant. Coliform counts ranged from less than 1 to 36 per ml.

The desoxycholate agar gave the best plates from all standpoints and was the only medium which showed promise when 1 ml. quantities of milk were plated directly. One or two modifications of all 10 media failed to improve results materially and the desoxycholate agar was selected for further study.

At this time several special experimental bile salt agars * previously found promising by other workers were selected for study. These were compared with each other and with the desoxycholate agar. The best of the experimental agars proved to be one now on the market under the name of "Bacto-violet red bile agar." This medium permitted the direct plating of 1 ml. quantities of milk and gave results as good as the desoxycholate agar.†

The only ingredients common to both media were peptone (1.0 per cent), lactose (0.5 to 1.0 per cent), and the indicator neutral red (0.0033 to 0.005 per cent). In addition, desoxycholate agar contained sodium chloride (0.5 per cent), dipotassium phosphate (0.2 per cent), ferric ammonium citrate (0.2 per cent) and the bile salt, sodium desoxycholate (0.1 per cent). The violet-red bile agar contained yeast extract (0.5 per cent), crystal-violet (0.0004 per cent) and special bile salts (0.1 per cent).

These media are used in the same manner. Best results are secured if about 15 ml. of agar at a temperature of 45° C. are poured per plate. After solidification, repouring with a thin surface layer of agar is desirable in order to secure a uniform appearance of red colonies. Typical coliform colonies are deep red in color and usually from 1 to 2 mm. in diameter after 15 to 24 hours' incubation at 37° C. A longer incubation is undesirable due to growth of slow acid producers which may form red colonies.

It is our experience, based on a study of approximately 1,000 samples of raw milk from 85 producers, that colonies which are deep red in color on this medium and which are 1 mm. or over in diameter will produce gas in lactose broth in at least 90 per cent of the cases. Red colonies between 0.5 mm. and 1.0 mm. in diameter produce gas in only

* Manufactured by Difco Laboratories, Inc.

† Manufactured by Baltimore Biological Laboratory. Since this work was done, a powdered desoxycholate lactose agar of different composition has also been placed on the market by this company.

about 25 per cent of the cases while red colonies less than 0.5 mm. in diameter rarely form gas from lactose.

The plating method was frequently found to be unsatisfactory for the examination of raw milk representing individual producers. In probably 25 per cent of the samples of raw milk, border-line types approaching coliform colonies in size or color were present to such an extent that an accurate differential count could not be made. Pasteurized milk was next studied. Plate counts with one or both of the media described were made on 426 samples of pasteurized milk representing 126 New York State dealers. Border-line types of colonies were rarely observed. Of the 426 samples, 295 were process samples taken monthly for 1 year at two local pasteurizing plants and plated in 1 ml. quantities on desoxycholate agar. Red colonies present in 49 of 295 samples always formed gas when inoculated into lactose broth and were typical of the coliform group when streaked on eosine-methylene-blue agar.

Twenty-six of the samples of pasteurized milk representing 19 dealers were obtained through the courtesy of the Rochester Health Bureau laboratories. These were plated in 1 ml. quantities on both violet-red bile agar and desoxycholate agar. Red colonies were present on 12 violet-red bile agar plates and 14 desoxycholate agar plates. Counts of red colonies on the 2 media were approximately the same. When a single representative red colony was picked from plates to lactose broth fermentation tubes and incubated for 48 hours, only 11 out of 26 fermentation tubes showed visible gas formation. This indicated that the count of typical red colonies sometimes included non-gas as well as gas formers and therefore represented a somewhat broader group, than are included in the definitions used in the *Standard Methods* Reports on Water and milk for the coliform group.[1]

One hundred and five of the samples of pasteurized milk were obtained through the courtesy of Dr. Robertson, of the New York State Food Laboratory. These were street samples from different New York State dealers. Single tubes of brilliant green and formate ricinoleate broths were inoculated and a single red bile agar plate poured with 1 ml. quantities of milk. Stark and Curtis [12] had already found by using pure cultures that lactose fermenting spore formers produced false tests in brilliant green bile broth, but not in formate ricinoleate broth when 1 ml. quantities of milk were used as the inoculum. However, in practice, a positive brilliant green and a negative formate ricinoleate tube may not be due to the presence of false test organisms but to sampling error when only a very few coliform organisms are present which are introduced into one tube but not into the other.

Therefore, further inoculation of a second formate tube from the positive brilliant green tube was employed since a positive result in the second formate tube would indicate that coliform organisms were present and that the difference was due to sampling error, whereas if the second formate tube were negative, lactose fermenting spore formers would probably be responsible for the false brilliant green test.

Certain members of the genus Salmonella may ferment the formate in formate ricinoleate broth with production of gas but are unable to produce gas from brilliant green bile broth. A negative brilliant green tube accompanied by a positive formate tube may then be used in the opposite manner by inoculating a second brilliant green tube from the positive formate tube to show whether or not members of the genus Salmonella are present.

In 23 cases out of 105, gas was

formed within 48 hours in both liquid media and in 6 instances in only 1 medium. When a tube of the negative medium was inoculated from the positive tube of the other medium, positive results were always obtained, indicating that the initial difference was not due to the presence of false test organisms. From this, it is concluded that false tests rarely occur either in brilliant green or formate ricinoleate broth when pasteurized milk is examined. This is important since it indicates that the presumptive test alone is satisfactory for pasteurized milk for all practical purposes.

In 17 of 105 samples only typical red colonies were present on the red bile plates and these were found to produce gas from lactose broth in 16 cases. Only 3 plates contained border-line types of colonies which routine workers might have mistaken for typical coliform types. Gas formers were isolated in only 1 of the 3 cases. Results from plates in general agreed well with results from tubes.

However, in contrast to 2 cases where agar plates showed typical red colonies while no gas appeared in brilliant green tubes, there were 10 in which the reverse condition was true, suggesting but not conclusively showing that the red bile agar was somewhat more inhibitive than the brilliant green broth. In contrast to 3 cases where agar plates showed typical red colonies while there was no gas in formate ricinoleate tubes, there were 9 in which the reverse was true, which again suggests that the red bile agar was somewhat more inhibitive. However, very few coliform organisms were present in the 12 samples involved since there were 5 in which gas was formed in one broth but not in the other. In 11 of the 12 cases, 48 hours was required for gas formation. Where tubes were positive but plates negative, only 3 out of 10 brilliant green and 2 out of 9 formate ricinoleate tubes could be confirmed. Failure to confirm results was probably due to the fact that there were only one or two coliform organisms per ml. in the sample and these either died out after gas was formed or were so completely overgrown by other types that they were not recovered. Probably confirmation would have been obtained in more cases if tubes had been plated in 24 hours instead of being streaked on eosin-methylene-blue agar at the end of 48 hours. It is unlikely that these were false tests.

SIGNIFICANCE OF PLATE COUNTS

Bacteria forming red colonies upon these agar media regardless of whether they ferment lactose with gas formation, are significant if destroyed by proper pasteurization, since their presence in freshly pasteurized milk then indicates recontamination. Thus, measurement of this group that is somewhat broader than the coliform group of organisms is an advantage under these conditions.

Boundary lines between the genera Escherichia and Aerobacter and other closely related genera in the colon-typhoid group are very indefinite. Also, in the coliform group, it has been well established that there are slow lactose fermenting strains, lactose degraded strains, and strains which form gas from lactose at some temperatures but not at others. To what genera do the red acid forming colonies belong which do not form gas in 48 hours when picked to lactose broth? *Bergey's Manual* (4th ed.) lists 15 species in the genus Achromobacter, 7 in the genus Eberthella and 4 in the genus Shigella which ferment lactose with acid but not gas production. Based on descriptions, many of these species, both in the same and in different genera, appear to be the same. Identification of these border-

line organisms is difficult owing to this confusion in classification.

A total of 44 cultures, isolated from raw milk, pasteurized milk, and ice cream, which closely resembled typical coliform colonies yet failed to produce gas in 48 hours when first picked to lactose broth, received detailed study (Gram stain, MR-VP test, gelatin liquefaction, indol production, nitrate reduction, appearance in litmus milk, motility and action on glucose, lactose, sucrose, dulcitol and salicin). These were all Gram-negative, non-spore-forming rods which grew aerobically on agar slants. Approximately 50 per cent (23 out of 44) can be placed in the genus Achromobacter although this is an indefinitely defined genus. They might better be placed in the genera Eberthella and Shigella which are more closely related to the coliform group.

Eleven cultures, 9 of which were from raw milk, might be placed in the genus Flavobacterium because of their yellow pigmentation; 5 were slow gas formers otherwise resembling strains in the genus Aerobacter. Three cultures belonged to the genus Escherichia. Although they failed to form gas from lactose upon the initial transfer, they later formed abundant quantities. One culture was placed in the genus Serratia and one in the genus Alcaligenes. One culture formed abundant gas from lactose at 30° C. but not at 37° C.

DISCUSSION AND SUMMARY

In a broad sense, all red acid forming colonies larger than 0.5 mm. which grew on the media described under the conditions specified, either belong or are closely related to the coliform group; yet, it seems unwise to accept a count of red colonies as a coliform count since it does not conform to our standardized and accepted procedure in water and milk analysis of recognizing only those forms in the coliform group which produce gas from lactose in 48 hours. Therefore, it would seem wise to use another expression such as " red or acid colony count " until it is established by study of representative colonies that they really belong to the coliform group as defined in the *Standard Methods* reports.

The majority of samples of pasteurized milk examined in public health laboratories are bottled street samples. A positive result usually means that the product is recontaminated but gives no indication as to degree since growth may have taken place in the bottle. A negative result does not mean freedom from recontamination since it is well known that the milk bottled during the middle or toward the end of the run may be free from coliform organisms due to their being previously rinsed from the equipment. Samples of unknown origin such as street samples do not merit quantitative analysis, and the single broth tube is sufficiently accurate under these conditions. The single tube is preferable to the single plate since it is simpler and quicker.

Quantitative results are justified in the case of process samples taken as a follow-up to qualitative results secured with street samples. It is here that the plate method is of value for it gives a clear picture of sources of recontamination, and the inclusion of non-gas-forming organisms is not an objection since the sample of pasteurized milk taken from the holder directly after pasteurization serves as the control. Process samples should include the first milk over the equipment and the first milk bottled in order to measure the maximum amount of recontamination.

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International Health Congress in 1939

PLANS are being made for the holding of an International Health Congress during the New York World's Fair in 1939. In a statement to the press, Donald B. Armstrong, M.D.,* President of the National Health Council, explained that advantage will be taken of the fact that hundreds of noted medical specialists and public health authorities, representing many countries, will be visiting New York City at the time of the World's Fair. American and foreign specialists will be asked to deliver addresses on subjects of interest not only to professional groups, but also to the general public.

The last Health Congress such as the one scheduled for 1939 was held at Atlantic City in 1926. Plans for the 1939 sessions are being perfected by the National Health Council in collaboration with the World's Fair Advisory Committee on Medicine and Public Health, which is headed by Louis I. Dublin, Ph.D.* The program will be related, as much as possible to the exhibits on medicine and public health that will be on display at the World's Fair; and it is hoped that a permanent American Museum of Hygiene similar to the German Hygiene Museum in Dresden will be established in New York subsequently.

* Fellow A.P.H.A.

Nutritional Economics of Dietary Calcium

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CALCIUM has been the subject of hundreds of papers and discussions. Frequently attention has been focused on either the chemical, physiological, nutritional, or dietetic aspect of the element. Cost of calcium in the various forms of foods and pharmaceuticals has also been mentioned from time to time, but apparently with insufficient effect. Comprehensive summaries arranged from multiple points of view, including especially nutrition and economics, are rare indeed. It is thought that a survey of the cost of calcium in the foods especially noted for their minerals and in other calcium sources may be interesting to this group which is concerned with improving public health through foods and nutrition.

If most of our people ate what is thought to be enough calcium, this paper would not have been prepared. According to authoritative opinion, however, calcium is often consumed in too limited quantities. For example, Sherman [1] wrote as recently as 1932:

> The "ordinary mixed diet" of Americans and Europeans, at least among dwellers in cities and towns, is probably more often deficient in calcium than in any other chemical element.

There has been little or no improvement since 1932. The facts that calcium occurs in the human body more abundantly than any other mineral element, and that its shortage leads to a variety of serious malconditions make its lack a point of primary significance.

This paper, therefore, relates to nutritional calcium as it applies to our general human populace. The unfortunately wide gap between scientific information and actual consumption of this dietary essential might well be narrowed. Authorities on nutrition have emphasized that average or so-called normal nutrition may be far below optimal nutrition; the latter being that state of nourishment which promotes buoyant health. There are many millions of people who do not even enjoy normal nutrition, to say nothing of the newer superlative state. Scientific information has outdistanced the practical distribution and consumption of our important food adjuncts. This is particularly true of calcium.

Standards for calcium intake are based primarily on carefully observed complete balance experiments. Apparently the needs are greatest for lactating women, and are successively less for pregnant women, growing children and infants, and adults respectively. Allowing 50 per cent safety margin, the most widely recognized daily standard for calcium ranges downward from 1.4 to 0.68 grams. A rounded value of 1.0 gm. plus or minus 0.4 gm. calcium (expressed as elemental Ca), depending on

TABLE I

Certain Foods as Sources of Calcium

Food Item	Retail Price: Cents	Retail Price: Per	Serving Portion	Milligrams Calcium: Per 100 Gm.	Milligrams Calcium: Per Serving	Milligrams Calcium: Per Cent	Cost to Consumer of Food Providing 1 Gram of Calcium (Cents)
Dairy Products							
Milk, cows; whole, buttermilk, or skimmed	11.0	quart	1 cup (¼ qt.)	120	293	106	9.4
Milk, evaporated	7.0	14 oz.	½ cup	276	336	156	6.4
Milk, powdered	55.0	lb.	15 gm.	1,180	177	97	10.3
Cheese, American	27.0	lb.	15 "	933	140	156	6.4
Cheese, Cottage	15.0	lb.	55 "	82	45	25	40.0
Cheese, soft cream	44.0	lb.	30 "	365	109	37	27.1
Cheese, Roquefort	179.0	lb.	15 "	706	106	17	58.8
Vegetables							
Beans, canned, string	10.5	19 oz.	130 gm.	48	63	24	41.7
Bean, soya, flour	17.5	lb.	40 "	271	108	70	14.3
Carrots, canned, diced	9.6	20 oz.	120 "	57	68	34	29.5
Peas, canned	12.0	20 oz.	70 "	16	11	7	142.9
Potatoes, white, boiled	35.0	15 lb.	150 "	16	24	31	32.2
Spinach, canned, cooked	12.0	18 oz.	100 "	65	65	27	37.0
Tomatoes, canned	5.0	10 oz.	130 "	8	10	5	250.0
Fruits							
Apples, fresh	5.0	lb.	1 large	7	11	6	166.6
Bananas, fresh	6.0	lb.	1 medium	9	9	7	142.9
Oranges, fresh	25.0	doz.	1 "	44	69	19	52.7

Meat, eggs, and grain products omitted because their calcium content is of lesser importance

specific circumstances, is a suitable mean value to bear in mind.

There are two important channels through which the public gets its dietary calcium: foods and pharmaceuticals. It seems unnecessary to enumerate the obvious reasons why public health ideals should call for most of the day-after-day calcium to be provided by foods rather than by pharmaceuticals—convenience, automaticity, distribution, and many others could be mentioned. Perhaps omission of the word *economy* appears to be an oversight. Perhaps it is thought that calcium salts are usually cheaper in the grocery than in the drug store. The data which will follow show comparative values.

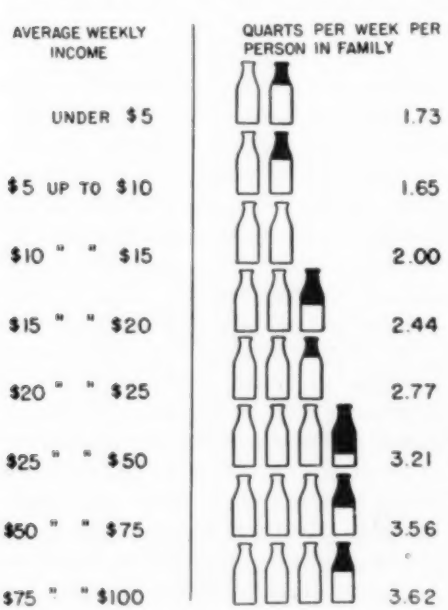
What excuse, if any, exists in 1936 to justify the fact that many children still get insufficient calcium in their dietaries? Is it purely one of economic cost? Is there lack of either knowledge, initiative, perspective, or wise judgment on the part of those who shape our food consuming habits? Do not food producers, teachers, regulatory officials, public health bodies, and other active agencies all have a responsibility in improving this condition? Is the delayed improvement due to maldirected promotional efforts on the part of people either in or outside of direct sales work? Or is it reluctance to approach an old problem in a new way that continues to retard accomplishment of more ade-

quate calcium intake? Answers to these points are not simple. Undoubtedly the points mentioned constitute only a part of the reasons.

Table I lists foods commonly regarded as important sources of dietary calcium. All of them convey other very significant nutritional values such as proteins, vitamins, calories, and minerals which have necessarily been omitted from this consideration. Nevertheless, the figures of the last column show the respective retail costs of different food items each in such quantity as to provide 1.0 gm. of calcium. Prices are based on Chicago retail grocery quotations as of September 16, 1936. Only one product listed was not available in the grocery stores—the powdered milk. It was available in most drug stores at the price indicated.

The cost of natural foods bearing 1 gm. of calcium varies from a low of 6.4 cents for cottage cheese up to more than $2 for evaporated milk or American cheese. Fresh whole milk is usually recognized as providing more calcium to the American dietary than any other single food. That is a position of extremely high respect and responsibility which milk holds. Evaporated milk is also an important food source of calcium and, like all other dairy products, its calcium is highly regarded for its biological availability. If milk consumption levels were actually and universally high, closely approaching a quart per capita per day, the situation would indeed be gratifying. In disappointing contrast, however, there stands the evidence as typified by a recent report. A survey of milk consumption [2] in 59 large cities of this country, conducted by the Consumers' Counsel Division of the Agricultural Adjustment Administration, U. S. Department of Agriculture, states:

FIGURE I



3. In only 8 out of the 59 cities was the average per capita consumption of whole and evaporated milk 3 quarts or more per week. In 9 cities the consumption was less than 2 quarts per person. Less than 2 quarts per person also was reported for more than two-thirds of the entire number of families surveyed.

In the May 18, 1936, issue of *Consumers' Guide* [3] the same agency has portrayed the observed relation of income, as well as the relation of number of children per family, to milk consumption. These are shown in Figures I and II respectively.

Let us now compare the foods with the calcium pharmaceuticals such as one might find in most good drug stores. Table II gives such values based on prevailing Chicago retail trade prices of the same date. Though that list is brief, it shows a typical cross-section of the relative costs of some of the calcium tablets and powders.

So much for the sources of dietary calcium as they exist today. A further

step is to consider what might be done on a widespread scale if and when a newer practice seems advisable. There are accessible in commercial quantities a number of strictly edible calcium salts. Data on the best known of these salts are given in Table III. They include the carbonate, citrate, gluconate, lactate, phosphate, and bone meal. Any of these calcium salts could be used to fortify foods. Some of them would probably be unsuitable in specific circumstances because of mechanical or chemical incompatibilities. Out of the entire list, however, there are many possibilities for practicable fortification of economical foods. For example, it might be a step in the right direction if such products as macaroni, spaghetti, noodles, bread, crackers, cereals either ready-to-serve or uncooked, and possibly other foods were moderately enriched with calcium at the manufacturing plant where calcium salts are available at relatively low costs. It is thought that the cost would be sufficiently low to permit the fortification without increasing the retail food price. The facts are that many children who receive too little of the high-calcium foods quite universally consume heavily

TABLE II

Calcium Pharmaceuticals, Usually Eaten for Special Dietary Purposes

Product	*Type*	*Form*	*Cost to Consumer of Pharmaceuticals Providing 1 Gram of Calcium (Cents)*
A	Bone phosphate	Tablet	1.4
B	Calcium phosphate	Powder	2.8
C	Di-calcium phosphate	Tablet	5.4
D	Calcium gluconate	Powder	3.6
E	Calcium gluconate	Tablet	17.9
F	Calcium lactate	Powder	0.8
G	Calcium citrate	Powder	0.9

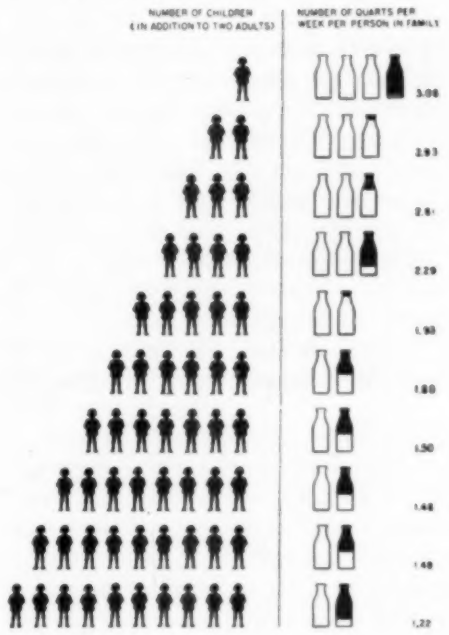
TABLE III

Calcium Salts of Strictly Edible Grade Are Available at Prices as Indicated Below

Material	*Cost per lb. (in Ton Lots) (Cents)*	*Per Cent Calcium in Salt (Approx.)*	*Cost of Salts to Food Manufacturer per 1 Gram of Calcium (Cents)*
Calcium carbonate (precipitated)	3.0	40	0.016
Calcium citrate	30.0	21	0.32
Calcium gluconate	50.0	9	1.25
Calcium lactate	21.0	13	0.36
Calcium phosphate, mono-	8.0	16	0.11
Calcium phosphate, di-	7.0	23	0.07*
Calcium phosphate, tri-	7.0	36	0.05
Calcium phosphate, bone meal	10.0	33	0.07

* If 5 per cent of this salt were incorporated in an inexpensive food, for example macaroni, retailing for 10 cents per lb., each pound of product would contain 5.38 grams calcium, and a gram of added Ca would cost the consumer 2 cents.

FIGURE II



of the inexpensive carbohydrate foods. *The reason is economic.* The question of relative nutritive values of various calcium sources requires further biological tests both with the calcium salts and with natural foods. In this regard Dr. Shohl [4] wrote recently that nearly all forms of calcium even including the insoluble salts seem utilizable.

In conclusion, the circumstances seem to indicate the need for more economical, automatic and accessible food sources of calcium. To some people it may appear that it is unfair to express the calculated cost of food calcium as it has been done above, since milk, for example, also furnishes liberally of relatively expensive food substances including high quality protein, fat, and vitamins. Another field of nutrition, namely, livestock feeding, serves as an interesting comparison. Many efficient livestock producers use milk in their rations, but for several decades they have based use of that product chiefly on constituents other than calcium. For an economical source of calcium they have used mineral salts *per se*, or bone meal. Perhaps the addition of calcium salts to certain foods which are consumed regularly by families on extremely low budgets would help significantly. They, in particular, are the people whose calcium needs are least adequately met.

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Burial Permits in Maryland

THE State Board of Health of Maryland, on April 22, 1937, adopted a regulation recognizing burial permits from the District of Columbia and states adjacent to Maryland. This action was based upon a feeling that the primary purpose of the burial permit is to give assurance that a death certificate has been filed with the proper local registrar.

It was further felt that a permit from an adjacent state will give this assurance about as effectively as would a Maryland permit; therefore, undertakers from such states will no longer be required to obtain a second burial permit when entering Maryland.

Cemetery authorities in Maryland will accept, record, endorse, and forward such foreign permits to the local registrar in the district of burial, in the same manner as is prescribed by law for Maryland permits.

Nature of Autarceologic Susceptibility to Poliomyelitis

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THE weight of evidence in poliomyelitis is to the effect that the upper respiratory (nasal) mucous membrane is the portal of entry of the virus. It is questionable, however, whether an intact mucosa actually constitutes the barrier to the paralytic disease in the majority of those exposed to the virus. A significant number of cases of the bulbar type following surgical procedures involving the upper respiratory mucosa indicate that its permeability may sometimes be a factor in the occurrence of the frank disease.[1] On the other hand, the phenomenon of widespread immunity among individuals who have not suffered an attack of paralytic poliomyelitis suggests that the virus must have reached some deeper structure.

Recently, Webster[2] has shown in mice with high inborn resistance to experimental encephalitis (St. Louis type) that in the sub-clinical immunizing infection following intranasal instillation, the virus had penetrated the nervous system as in frank disease, thus indicating that resistance in such strains of mice is not merely a matter of permeability of the nasal mucosa.

PREVENTION OF INFECTION BY INTRANASAL BLOCKADE

The permeability of the nasal mucosa may not necessarily determine the paralytic disease or sub-clinical immunization as the result of infection in man, though the virus may gain entrance at this point. Recent investigations have been concerned with chemical blockade for the prevention of poliomyelitis. In 1920, Flexner and Amoss[3] performed experiments with chloramine-T and dichloramine-T. In 1934, Olitsky and Cox[4] rendered mice resistant to subsequent infection by intranasal instillation of the virus of equine encephalomyelitis with tannic acid, and stated that they were also carrying on experiments with the virus of poliomyelitis. Armstrong,[5] in 1935, reported tests with sodium alum in the prevention of nasal infection in mice with the virus of encephalitis, and later[6] in monkeys with the virus of poliomyelitis. Sabin, Olitsky, and Cox[7] meanwhile projected their studies with tannic acid and sodium alum. Armstrong[8] subsequently used a number of chemicals and found picric acid most effective.

Due to variability of result by the intranasal route of infection in the monkey, the outcome has not always been clear-cut, but reports by various investigators with a number of chemical preparations indicate successful blockade by treatment of the nasal mucosa.

* This work was financed by the Harvard Infantile Paralysis Commission and the President's Birthday Ball Commission for Infantile Paralysis Research.

Read before the Epidemiology Section of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, La., October 22, 1936.

We have performed experiments with several chemical agents using *Macacus rhesus* monkeys, and in order best to take account of the wide variation in the frequency with which the disease results from intranasal instillation, equal numbers of control animals in each experiment.

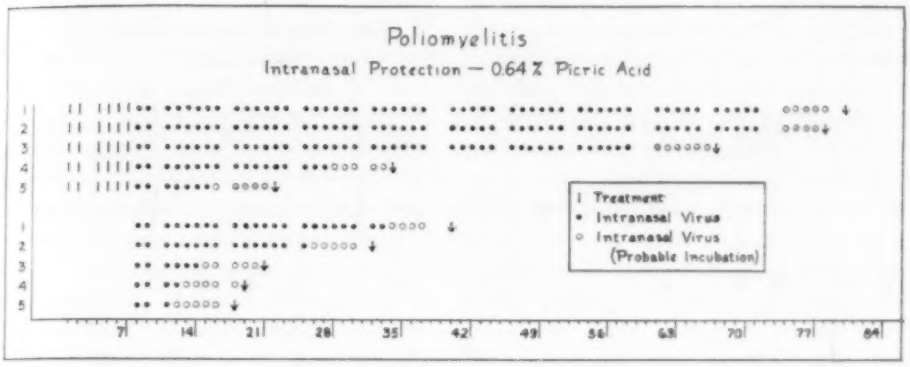
Alum 1 per cent—Five monkeys were given, for 3 consecutive days, 0.5 c.c. alum 1 per cent in each nostril, and on the 4th day one drop of virus in each nostril. This procedure was repeated until the 42nd day after the first alum instillation, when the treatment was discontinued. The virus was then given every other day while the animals survived. Five controls were given an equal amount of the same virus on the same days as the treated animals. One of the alum treated monkeys did not develop the disease until 83 days after the first instillation of virus; and one of the controls survived instillations of virus for 60 days before developing the disease. Three of the control and 2 of the experimental animals developed the disease within 10 days of the initial instillation of virus. The average length of survival in the 3 remaining experimental animals was 59 days; in the 2 remaining controls, it was 56 days.

Alum 4 per cent—Five monkeys were given, on alternate days, 0.5 c.c. alum 4 per cent in each nostril; and on intervening days, one drop of virus in each nostril. An equal number of controls were given the same amount of virus intranasally at the same time. One of the treated animals failed to develop symptoms after being given alum and virus for 150 days. At the end of this period, the monkey was inoculated intracerebrally and developed experimental poliomyelitis, indicating that even this large number of intranasal instillations, while failing to produce the disease, did not evoke immunity. In this experiment, one control survived intranasal instillations of virus for 121 days, then died of intercurrent disease. Four of the control animals developed poliomyelitis between 18 and 29 days, and 3 of the experimental animals between 15 and 30 days after the initial virus instillation. One experimental animal developed the disease after 112 days of alternate alum and virus instillations.

Tannic Acid—Ten monkeys were given on 3 consecutive days 1 c.c. 1 per cent tannic acid in each nostril, and on the 4th day one drop of virus in each nostril. This procedure was repeated on the one surviving animal up to the 40th day after the first tannic acid instillation, when treatment was discontinued; the virus was given every day thereafter. Ten control animals were given an equal amount of the same virus on the same days as the treated animals. Nine of the monkeys treated with tannic acid withstood an average of 3.2 instillations of virus; one survived 94 instillations, was inoculated intracerebrally, and succumbed. The controls all succumbed after an average of 4.2 instillations of virus. Thus, with one exception, the results in the treated animals were not essentially different from the controls.

Picric Acid—Five monkeys were given for 6 consecutive days 1.5 c.c. picric acid 0.64 per cent (in normal salt solution) in each nostril. On the 7th day a drop of virus was instilled into each nostril, and this was repeated each day until the animal developed poliomyelitis. Five controls were given the same amount of virus intranasally at the same time. All the animals in this experiment succumbed. Those treated withstood an average of 39.4 instillations of virus, the controls an average of 14.8 instillations. The average survival time from the initial instillation of virus was 49 days in the experimental animals and 19 days in the controls. Two of the experimental animals sur-

FIGURE I



vived no longer than the controls, the increase in survival time being accounted for by 3 of the experimental animals (Figure I).

Picric Acid with Glycerine—Five monkeys were given each day for 6 consecutive days 0.5 c.c. of a mixture consisting of 3 parts of picric acid 1.5 per cent (in normal salt solution) with 1 part glycerine, this being instilled into each nostril. On the following day they were given a drop of virus in each nostril, this being repeated daily. Five controls were given an equal amount of the same virus intranasally at the same time. Two of the treated animals withstood an average of 23.5 instillations of virus; the remaining 3 died of intercurrent disease, having survived 49, 51, and 62 instillations of virus, respectively. Four of the control animals succumbed after an average of 5 instillations; the 5th failed to develop the disease after 72 intranasal instillations of virus.

The results of our experiments corroborate those obtained by other investigators to the effect that blockade by various chemical preparations protects temporarily to a considerable degree against intranasal instillations of virus. However, it must be noted that here we are dealing with the application of what is perhaps a relatively huge dose of the infectious agent to the apparently normal and uniformly permeable nasal mucosa of a monkey. Furthermore, this structure in the monkey presumably is the barrier, since the production of neutralizing substance does not follow even a long series of ineffective instillations of virus. In man, however, the evidence of widespread immunity suggests that the occurrence of frank poliomyelitis hinges upon relatively minute doses of virus, and upon an exquisite susceptibility on the part of the exceptional individual.

Should mechanical measures prove successful in blocking temporarily the entrance of the virus, it should be borne in mind that sub-clinical immunization, which might stand the individual in good stead against some later exposure, probably would be prevented likewise. This may cause some question to be raised as to the feasibility of this procedure as a practical means of preventing the disease, for the reason that application to the general population might avert a relatively enormous number of sub-clinical immunizing infections for every frank case of the disease it prevented.

The practical difficulties in the way of mass application of specific measures in a disease in which infection is so widespread and the paralytic disease

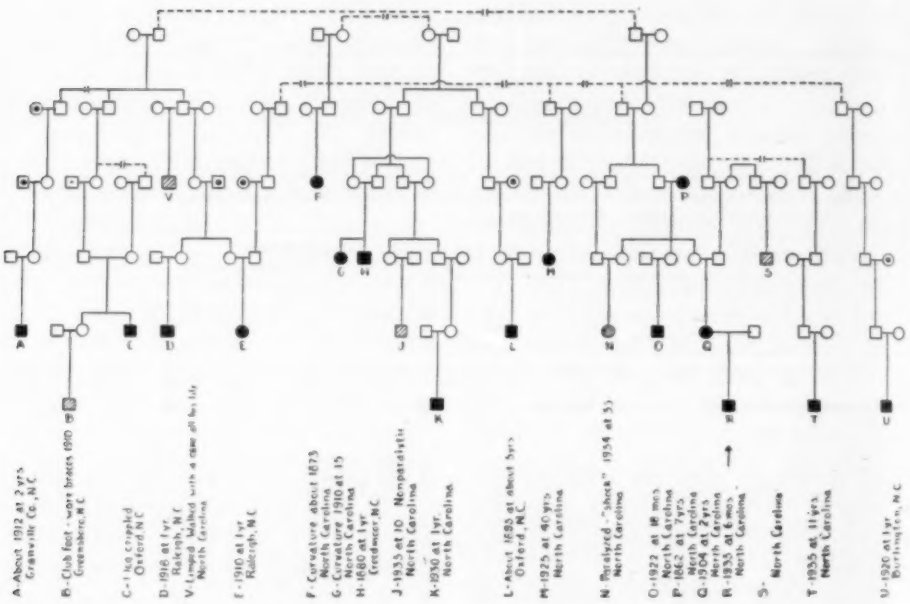


FIGURE II—Cases of poliomyelitis in a single family line. Case R is the propositus. The individuals indicated by small dots represent families into which members of this family married and in which there were cases. Cases as determined either by examination or history are shown in black, more doubtful cases are shaded.

so exceptional have been discussed previously and the importance of autarceologic susceptibility emphasized. An understanding of the basic factors which determine susceptibility might lead to a practical means of its correction in the few, or to a means of selection of that minority in the population who lack resistance, for whom specific measures or even continuous medication might be feasible.

Clinicians have long been cognizant of the tendency of poliomyelitis to occur in children who are large, healthy, and well nourished. Such notations as the following are found scattered through the literature:

"I have seen it in others who are older and the finest children" (Underwood 1799).

"Strong and healthy children are more frequently affected than those of a weakly constitution" (Shaw 1823).

"Among features prominent in almost every case was the strong and blooming bodily constitution of the patient" (von Heine 1840).

"The affection usually occurs in a strong, healthy child between 6 months and 2½ years old . . . A healthy looking boy, with light hair, blue eyes and sound teeth . . . The excellent state of the general health in this affection is very striking . . . Almost all of the children who are brought to our clinic are remarkable for their fine, healthy appearance" (Sinkler 1875).

"Boy, 3 years, stronger than his brother a year or two older . . . Boy, 3½ years, most active of a family of 3 children" (Caverly 1894).

"Of the 46 cases in which the previous health of the sufferers is given, it is quite certain that the strong, healthy children preponderated" (Caverly 1896).

"A perfectly vigorous boy until a fortnight previous . . . Four years old, a fine vigorous boy . . . A robust boy aged 2 years and 5 months . . . A healthy girl of 10 years and 6 months" (Madison Taylor 1898).

"As a general rule the children affected had been exceptionally robust and active with good appetites and living on a general diet" (Hill 1909).

These exclamatory comments concerning the children attacked by polio-

myelitis, appearing even in the earliest descriptions of the disease, presage Draper's "poliomyelitis type" and are enough to convince one that, whatever the individual predisposition, it does not reside in a "run down" condition in the ordinary sense of the word. Our own efforts toward defining more clearly the phenomenon of autarceologic susceptibility have been directed along 3 lines: (1) epidemiologic and genetic considerations, (2) anthropometric studies of individuals attacked, and (3) experimental attempts to influence the susceptibility of monkeys.

EPIDEMIOLOGIC STUDIES

Studies of the seasonal and geographic distribution[9] of poliomyelitis, in the face of what is evidently a widespread and relatively uniform dissemination of the virus, indicate a selectivity in its occurrence according to climate and season, and suggest that autarceologic susceptibility is associated with some failure on the part of a certain fraction of individuals to make adequate physiologic adjustment to varying climate and season. A hereditary influence on susceptibility is indicated by the results of a survey in which 51 per cent of cases gave a history of poliomyelitis among relatives, compared to 5 per cent of normal individuals.[10] This study was conducted in New England, an area of comparatively high poliomyelitis prevalence. In Figure II is shown the familial occurrence of the disease in a southern state, where the reported prevalence is low.

ANTHROPOMETRIC STUDIES

Several attempts have been made to confirm the clinical impression that poliomyelitis occurs in a certain type of individual suggestive of endocrine difference, but difficulties have been encountered in establishing a mathematical correlation between the disease and any measurable manifestation of endocrine anomaly. In a general way, the type is suggestive not so much of a pathologic endocrinism as an inherent or latent endocrine difference which may express itself only in certain differences in growth and development, which in themselves can hardly be considered abnormal from the endocrine point of view. Some studies relating to the type of individual prone to poliomyelitis have dealt with anthropometric measurements or with markings which have not been established as reflecting differences in constitution.[11]

We have made a series of anthropometric studies upon 109 poliomyelitis patients. Among the measurements, which are taken as indicative of endocrine differences suggestive of either a relative hyperpituitarism or a relative hypergonadism, are span (arm length), lower measurement (leg length), and upper measurement (body length). These figures have all been plotted with reference to age. They show increased span, increased lower measurement and decreased upper measurement as compared with the normal. Figures III and IV show the span in girls and the lower measurement in boys in this series, as compared with the normal variations for whatever ages, as shown by the unbroken lines on the charts. The changes in the other measurements referred to are of the same order as those shown in these charts.*

EXPERIMENTAL

In 1929, we attempted procedures designed to alter artificially growth and development in the experimental animal, in the direction indicated by clinical studies. These experiments, relating to

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* The normals are those given by Engelbach, W.: *Endocrine Medicine*, Vol. I, Ch. 7, 1932, C. C. Thomas Co. A criticism of our observations lies in the fact that the normals which we used for comparison were not obtained at the same time and in the same locality as the cases.

FIGURE IV

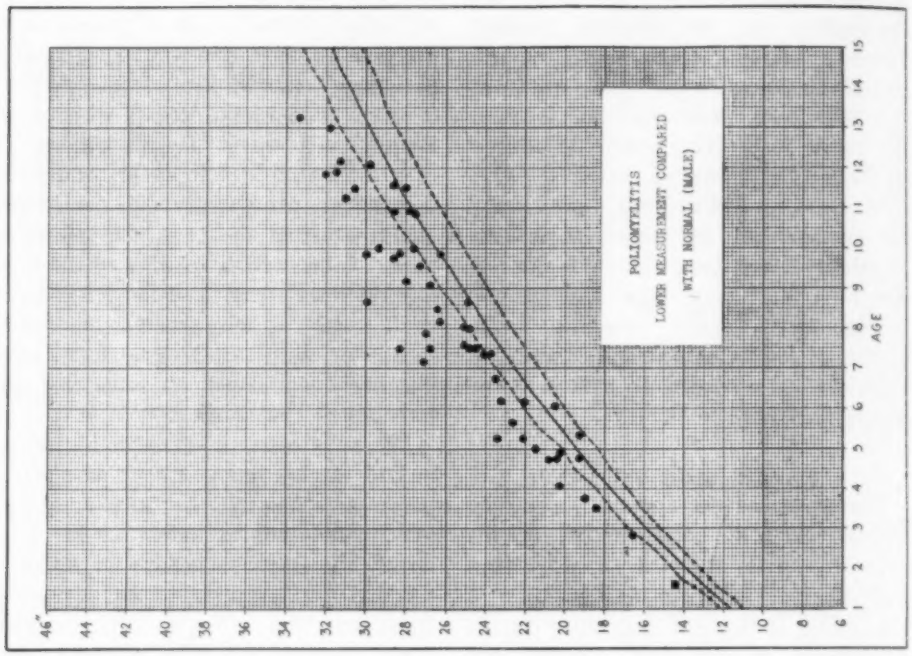
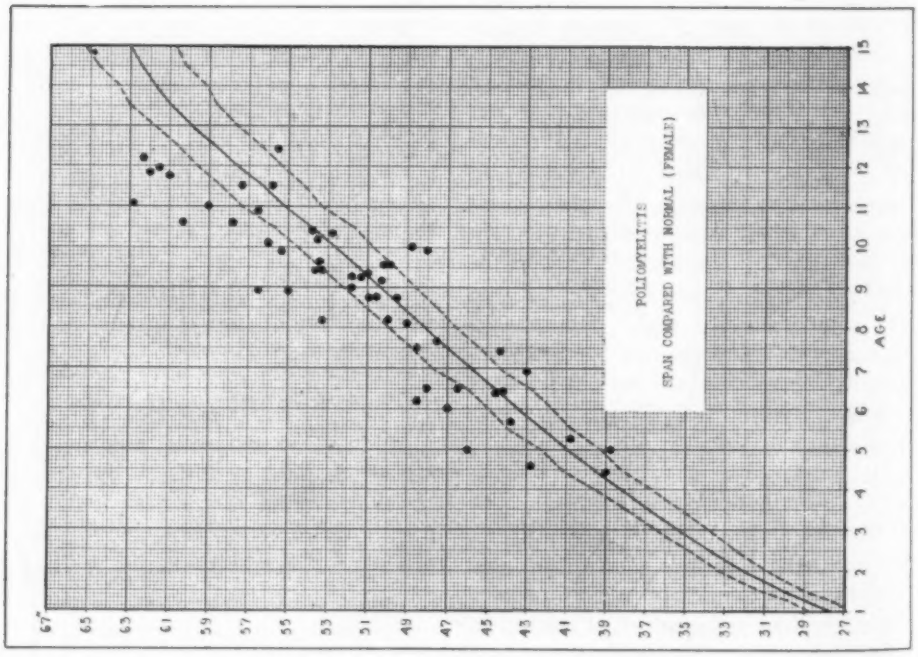


FIGURE III



thyroid and hypophysis, gave inconclusive results and were not published. More recent developments in the field of endocrinology—thinning of the vaginal mucosa by castration and recornification through administration of estrin, the finding that changes of similar origin occur in the vaginal mucosa during pregnancy, and more especially the participation of the nasal mucosa and other structures of ectodermal origin in these changes—are consistent with the aggregate information available concerning individual susceptibility to poliomyelitis: the type of person involved, the occurrence of the disease during pregnancy, and the tendency to familial occurrence.

With these considerations in mind, immature female monkeys were castrated. After 24 days, the animals were treated daily with intramuscular injections of 2,000 International units of estrin in oil (Squibb's Amniotin)* and then given intranasal instillations of a 5 per cent suspension of poliomyelitis virus. An equal number of castrate monkeys, not treated with estrin, and given intranasal instillations of the same virus at the same time as the estrin monkeys, were used as controls.[12]

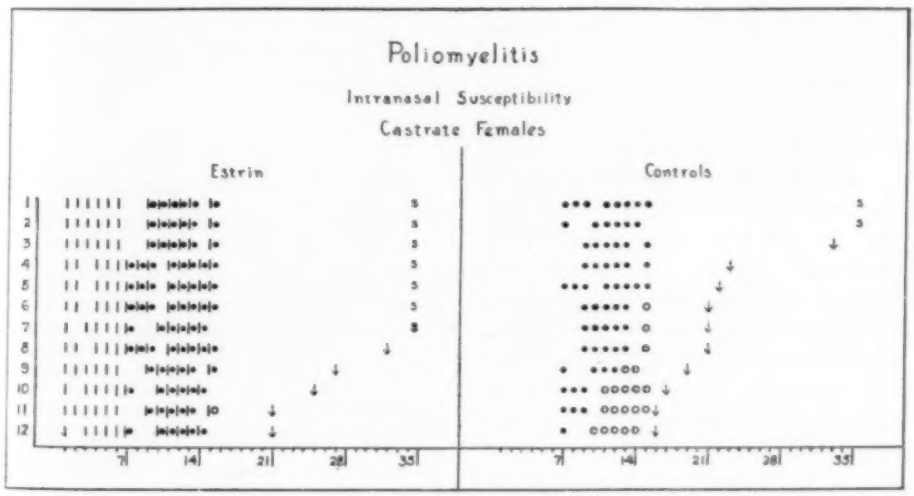
The results of 3 separate experiments are combined in Figure V. Seven out of 12 treated animals survived intranasal instillations of virus; in 5 of these, the average incubation period was longer than in the 10 control animals which developed the disease.

SUMMARY AND CONCLUSIONS

There is epidemiologic evidence that the virus of poliomyelitis is widespread, infection resulting in the production of humoral antibodies in the majority and the paralytic disease in the relatively small minority of individuals. The evidence indicates that, although the human nasal musoca is the point of entrance of the virus, its permeability may not determine the paralytic disease. On the other hand, the nasal mucosa of the monkey appears to be the barrier, since those animals which do not develop the experimental disease, even after a large number of intranasal instillations of virus, likewise fail to develop humoral antibodies. The seem-

* Supplied through the kindness of Dr. J. F. Anderson of E. R. Squibb & Sons.

FIGURE V



ingly paradoxical increased susceptibility in the monkey may of course be due to the fact that, compared to what must be the case in the human, the experimental animal receives massive doses.

Our experiments concerning chemical blockade confirm the findings of other investigators. It is questionable, however, whether the procedures applied to the experimental animal would be effective in that small fraction of the human population who are exquisitely susceptible to paralytic poliomyelitis.

Epidemiologic and clinical studies indicate that autarceologic susceptibility to the paralytic disease on the part of the few who develop the frank form on exposure to the virus is due to inherent and often familial endocrine differences, not pathologic in themselves but suggestive of pituitary gonad imbalance. Experiments are reported which indicate that susceptibility to intranasal infection in the monkey has been altered by castration and administration of estrin.

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Function of the School in the Rural Health Program*

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A RURAL community by its very nature offers unusual opportunities for building effective relationships between the school and community health agencies in matters of child health. That we are only now beginning to realize what may be done is due more to neglect than to insuperable difficulties.

Today many educational leaders are seeing a better future for the rural school. Curriculum revision committees are active in some states, new educational values are being emphasized; and health workers are being called upon to contribute to the expanding program. It seems particularly fitting that we should consider some of the constructive ways in which the school may participate in the rural health program for the benefit of its children, and the part health workers may play in stimulating and assisting the schools in this task.

MAKING THE SCHOOL HEALTHFUL

Since the school is a miniature unit of society, where experience in community living takes place inevitably and naturally, its most important function is to provide opportunities for, and encouragement of, healthful living throughout the school day. It should strive for the optimum development of each child, and should attempt to give him an understanding of health principles at his level of comprehension. Trite as these statements seem, they are in truth the very essence of a sound school health program. In actual rural situations the ability to make them function rests largely with the teacher. To her we must turn with help and stimulation, in order that her efforts may be intelligently and effectively applied.

A 2 teacher school comes to mind where in the upper grade room a study of community living was undertaken. Major interests centered around community relationships, sanitation, home arrangement, and electricity. Several subject matter fields, including science, social studies, and art were utilized, and the work was carried out through committee activities. Among the activities of the committee on relationships was an interview with the county nurse, who outlined her work and that of other members of the health department. The report of the committee contained a summary of this interview and observations on the ways the health department had helped the local community. The committees on home arrangement and sanitation made booklets to illustrate their points, which included

* Read at a Joint Session of the Public Health Education and Child Hygiene Sections of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, La., October 24, 1936.

adequate lighting, drainage, and home decoration. Much enthusiasm was shown by the committee studying electricity and its uses. Several homes had just been wired, and the possibilities of electricity in cooking, housekeeping, and farming were fascinating to consider. Of special value from the health angle were the demonstrations of safety in the uses of electricity.

But was health functioning in the school itself? Certainly the harmonious working together of committees of children around common problems of interest was providing invaluable experiences in social living. The room itself, with its attractive cleanliness corner, its light colored, dull finish paint, electric lights, sanitary toilets, and general appearance of tidiness, was conducive to good living. One had but to observe the friendly atmosphere in the room, the participation of all children in play, the prevalence of milk and fruit in the lunches, the sharing of responsibilities in keeping shades adjusted and room ventilated, and the running water system of handwashing, to realize that healthful living was a part of the daily experience of the majority of children in this school. It is true that few schools have gone as far as this one, but it exemplifies what may be accomplished under intelligent teacher leadership.

There are numerous ways in which the school, individually or collectively, may focus community attention on its health problems. For example, the schools in Cattaraugus County, N. Y., recently capitalized on the growing interest in rural electrification by setting up at the County Fair an exhibit of a model rural schoolroom to show good lighting. The room, constructed in a booth approximately 12′ x 12′, was complete in every lighting detail. Windows, with adequate space in relation to floor area and double mounted shades, were realistically painted on one wall. On another was a blackboard painted a dull finish. The walls were two shades of soft, dull green, and the ceiling a dull white. Suspended from the ceiling was a semi-indirect electric light of an approved type, and in the room were 4 movable and adjustable seats. During the busy part of each day, shifts

County Fair Exhibit of Lighting in a Modern Rural School

of teachers and pupils carried on actual school work in this model room. In the adjoining booth the Home Bureau had a convincing exhibit to show contrasts between good and poor lighting in the home. Every school trustee in the county was sent an invitation by card to visit the school display, and the response was gratifying. A follow-up was made at the fall teachers' meetings and, although it is too early to see tangible results, it is hoped that some will soon be in evidence.

THE SCHOOL AND THE HOME

It has been said there is little hope that the school can bring about any appreciable change in home conditions which will better the life of a child while the child is in school. Such a statement is only a challenge to many. A well known rural educator, Dr. Fannie Dunn, has recently pointed out that:

> . . . the rural home and family still carry the major responsibility for the healthful living of their members. Of this responsibility the rural child bears a genuine and significant part. To the son or daughter in the rural home fall the chores of filling the woodbox, or caring for the stove or furnace; a share in the milking and handling of milk utensils; the bringing of water, disposal of garbage, and other tasks in maintaining sanitary surroundings; assistance in food preparation and serving; much responsibility for younger children; help in care of the sick and the aged.

The rural school through its program of living and learning may do much to prepare the child for his responsibilities in the home. In a school where hygienic practices are a daily occurrence he may gain experiences which will influence his life outside, and the living of his whole family.

A more satisfactory condition exists, however, when there is also a direct relationship between the school and the home. This may be the friendly, personal relationship between the teacher and the home, where around the kitchen stove Tommy in all his aspects is discussed, or it may be the relationship that grows out of a mothers' club or other parent group organized by the school.

Many health workers have seen complete transformations in a community as a result of the activities of an awakened parent organization. Such a group can create favorable attitudes toward the care of children, as well as toward health work in general. They can often give tangible assistance, such as supplementary funds for defect corrections, when occasion demands. One is impressed with the strength of these organizations in sections of such states as Tennessee and Virginia.

A health officer in Michigan once remarked that he always liked to have a new health department activity, such as an immunization campaign, preceded by special studies of the problem in the schools. If one could carry this idea further to include parent participation in the planning and carrying out of such a campaign results would be even more far reaching.

THE SCHOOL AND THE COMMUNITY

In its broader relationships with the community at large the school is only now beginning to sense its possible contributions. Exploited as it has often been by special interest groups, who find it an easy mark for propaganda, and sometimes intimidated by local politics or friction, the school has perhaps been a little slow in identifying itself with worth while community movements. In the community health program of rural areas, however, there is potentially an unusual opportunity for service which may be closely related to child needs.

In one rural county, where crops for cattle have frequently taken precedence over vegetable gardens for children, a

joint project to promote gardens has been undertaken by interested groups, including the schools. Focusing attention on low income families with children, an attempt was made to provide these families with seeds at low cost, and to give them help in planting and storing the vegetables.

Coöperating agencies included the Rotary Club which advanced money for the seeds; the county public health nurses and the agricultural teachers in village high schools who located needy families and gave out the seeds; the Home and Farm Bureau agents who supervised their distribution and later sent out literature on planting and storing vegetables; and the rural teachers who promoted the idea of gardens and good nutrition in their local communities. To assist the teachers in this task literature was made available to them from the offices of the Home Bureau and the School Health Service. Some teachers approached the problem from the standpoint of ample food supplies for school hot lunches, and in the fall worked out projects with their older children on canning and storage of foods for the lunches. Several of the agricultural teachers arranged to have the seeds used in 4-H Club garden projects for children in these needy families.

Many teachers of secondary schools are seeking ways of helping adolescent students to take part in socially significant work outside the school. Health departments could do much to encourage this tendency by offering assistance in making surveys of health department activities, water supplies, housing, and the like, and by providing simple tasks in which especially interested students might participate. In a high school in Illinois, senior girls, selected because of their ability and interest in health, assist the school nurse in clerical work, weighing, and similar tasks. Likewise, in rural areas such students could help the county or district nurse by making layettes, by doing simple office or clinic work, by talking up immunization programs in their neighborhoods, and by many other little services an imaginative nurse could help them plan.

It is evident that each rural community must work out its own way of joining forces for the improvement of child health. In general, there are certain forms of assistance from health agencies which most schools need and welcome. Briefly summarized they are: adequate health service, information on home conditions which will throw light on school problems, help in selecting sound health literature, help in locating health problems that need attention, information on health services available in the community, in-service training of teachers, and stimulation for continued activity. The schools, on the other hand, by focusing their attention on health activities which will aid the growth of their students, both as individuals and as members of the community, will be contributing their full share in a community health program.

A Modern Concept of Education*

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IN this age of conflicting viewpoints in contemporary American education, it behooves one to study carefully and analyze critically the leading philosophies of education. Only by this process is it possible to evaluate theories. Only by this process can one develop an individual workable philosophy of education, and today as perhaps never before one desperately needs a scale of values in the form of a definite, yet flexible, philosophy of life as well as education.

Consider briefly the 3 outstanding, yet definitely conflicting, viewpoints in education. Examples of each of these are continuously before you in any of our public schools. Their exponents, each in his own way, are loyal and devoted to their own cause.

1. *Traditional education,* said to be "subject-matter centered," looks to the past for its ideals and content. It maintains its identity through an effort to "conserve and transmit the heritage of the past." Its method is the logical organization and presentation of subject-matter. One learns the names of the bones of the body in hygiene, and the dates and battles in history. Though it may have fitted its followers to live in a static society, it is claimed that in the new social order it ineffectively prepares one for the solution of problems and continuous adjustment to change.

2. *Scientific education,* which is "adult" or "society-centered," made its entry half a century ago through the medium of psychology, tests and measurements, and experimentation. Preparation for life is its justification and it seeks to determine what is to be taught in the public schools through a careful consideration of the needs of the present. Job analysis is its favorite technic. Its most awkward task has been an attempt to measure the abilities of students and homogenously group them in Sections A, B, and C for instructional purposes—forgetting that these same youngsters in life must hold their own in business and society that are heterogenous.

3. *Progressive education,* which is called "child-centered," holds that the teacher should be a guide, whose duty it is to observe the spontaneous activities of children, and to study their mental and emotional reactions. Content and activities are selected to further the immediate purposes of children. Experience in meeting new situations prepares for future needs. Living fully and purposefully today gives practice in meeting situations later in life.

Though relatively new in the American system of education, the progressive education movement is based upon the philosophy of Rousseau, Pestalozzi, Froebel, and Tolstoy. Its greatest lia-

* Read before the Public Health Education Section of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, La., October 23, 1936.

bility is that all teachers are not artist-teachers and all school situations are not ideal. Its emotional appeal is tremendous and many converts have caught the spirit, but as yet few have developed the technic.

By cross-breeding, Burbank was able to develop superior fruits and flowers and cactus plants. Likewise, because in almost every modern school can be found devotees of each of these 3 conceptions, a new specimen in education is developing. A synthesis of the best in these 3 philosophies is gradually evolving. A new concept is emerging, characterized by the stability and ideals of the traditional; the accuracy and skills of the scientific, and the spontaneity and creativeness of the progressive.

From the traditional school we adopt certain ideals and standards of belief and conduct, such as coöperation, respect for law, regard for the other fellow's rights and feelings, honesty, trustworthiness, and thrift. We could borrow from that school too, loyalty to family, church, government. John Dewey told us in his last book that one of the underlying causes of chaos and unrest so characteristic of civilization the past decade was the loss of our loyalties—a person without loyalties is like a ship without an anchor.

From the scientific school we get the idea of basing the curriculum upon problems individual and social that are current today. We must measure progress too and provide for skills. L. P. Jacks, in his *Education of the Whole Man* tells us that the greatest undeveloped asset of the American people is skill. We cannot overlook such a shortage as that.

From the progressive school we borrow the idea that content and activities should be selected because of their inherent significance to pupils—even traditional subject matter becomes tremendously interesting if it relates definitely to the problem at hand. We agree that experience in meeting some need in a new and better way is a preparation for meeting the same kind of need in the future, but it is difficult to plan for the development of all the powers and needs of children through the medium of large experience units.

Writing in September *Parents Magazine*, Hughes Mearns, child expert, gives us a word picture of the new concept:

> The old answer was scholarship. The new answer is that scholarship is not the most important aim of youth education, but personality growth rather, and social growth.
>
> The old education was for the few, and it was sedentary; the new education is for all and it is active; ability to do is almost as worthy now as ability in knowing.

Rollo Reynolds, Principal of the Horace Mann School, goes further and outlines the responsibility of the newer education when he tells us that the great American public schools should do just 4 things for the 29 million school children—should develop in them 4 powers—the power to do, the power to know, the power to feel, the power to think.

Simply stated, and in the words of Thomas Briggs, the new concept proposes that "education should attempt to guide young people through experiences that will maximally develop each one to do better than he otherwise would or could those desirable things that he will do anyway."

The new theory holds that the values of education must be measured by its contribution to the most effective living. Formerly the criterion was college entrance requirements!

What prepares one for effective living? What is fundamental to the development of the whole child? What is essential to personality growth and social growth?

1. Of first importance is the adequate understanding of child nature. Every child has certain fundamental needs which are essentially like those of every other child. They are simple; it is relatively easy, but of tremendous importance if personality development is our aim, for every teacher to provide for each child to succeed at some task reasonably often. Units of work based upon life situations give opportunity for exploration, curiosity, and zestful activity. Self-respect is dependent upon recognition and approval. School is a social situation—children work together, play together, and learn to live happily together.

Children also have many characteristics which distinguish them from other children—marked differences in capacity to learn, in interests, in habits, skills, appreciations, and attitudes. The modern school preserves these differences realizing the violence done to individuality and personality when children are standardized as though they were run through a mill. Individual differences may take on another meaning also—the right to be different means the right to think for one's self—the right to make decisions—to become self-directing, to be responsible for one's conduct, one's work and one's relations with others.

2. The school environment contributes largely to the development of personality. Physically the environment should be comfortable, attractive, free from strain and menaces to health. Mentally it should be stimulating, satisfying, and interesting. Socially it should provide for working together on tasks that are mutually interesting—a sharing experience. And emotionally the school should be free from fear, harsh discipline, excessive noise and excitement, and too much emphasis given to competition. There must be pupil-teacher rapport for only through this happy and constructive relationship can there be spontaneity and creativeness.

3. The modern concept of education demands that we modify or change outright the curriculum. Many of the traditional subjects which aimed at training the mind and preparation for college entrance are either easing out of the curriculum or attracting fewer adherents. An attempt at enrichment and preparation for vocations and leisure have brought many contributions such as public school music, art, dramatics, health, physical education, family relationships, home management, cooking, sewing, manual training, and many others.

There is today a distinct tendency to break down subject-matter and to organize units of study around present-day problems or interests of the children. It is held that more subject-matter will be used by this process and that skills, abilities, understandings, and appreciations would even more effectively be accomplished by virtue of the interest children feel in pursuing their own goals.

If education, however, is to be afforded by a series of experiences—these experiences must be organized in some way to indicate their contributions to development; to facilitate learning; retention, skills and to show relation of one experience to others and eventually to a unified whole.

The teacher sets the stage and remains in the background in such a learning-situation. Through this process there is more learning and less teaching; more study and activity and less recitation. Pupils are guided in the solution of vital problems of individual and social life.

Certain Factors Affecting the Growth of Food Poisoning Micrococci*

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THE increasing number of food poisoning epidemics which are traceable directly to preformed toxins produced by certain species of micrococci (staphylococci) have caused health officers to take notice of this type of gastrointestinal upset. Little information is available on the general characteristics of these organisms other than the work of Dack *et al.*[1] and others who have studied in part the cultural characteristics of the micrococci responsible as well as the factors associated with their toxin production.

Stone[2] has reported that all of the micrococci associated with food poisoning epidemics have one cultural characteristic in common, namely, gelatin liquefaction. It has been known for some time that a large percentage[3] of micrococci liquefy gelatin and particularly the *Micrococcus aureus* types which are usually encountered in gastrointestinal upsets traceable to toxin producing micrococci. Stone has reported that a special medium prepared by drying the gelatin before making up and increasing the amount of beef extract from 0.3 per cent to 3 per cent, will produce a medium which micrococci will more frequently liquefy than the commonly used medium with 12 per cent gelatin and 0.3 per cent beef extract.

A study (Table I) of the relative rapidity of gelatin liquefaction as compared in ordinary nutrient gelatin and Stone gelatin indicates that toxin producing micrococci are somewhat more active from the standpoint of gelatin liquefaction in Stone's gelatin than in the more commonly used nutrient gelatin. Certain strains, particularly Nos. 8, 42, and 135, originally received from Jordan, were very slow liquefiers of ordinary nutrient gelatin but in Stone's gelatin liquefaction was much more rapid, while there were a few strains of Stone's gelatin in which liquefaction was slower. Repetition of these tests indicated that the rapidity of gelatin liquefaction is a very valuable character of the toxin producing micrococci. Certain other factors are involved in controlling the rapidity of gelatin liquefaction and as a cultural character it is not particularly suitable for differentiating the toxin producing type as a group.

The drying of the gelatin probably plays little part in increasing the efficiency of Stone's medium, but an increase (Table II) in the percentage of meat extract was found to increase the rate of gelatin liquefaction. Experiments in which varying amounts of beef

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TABLE I

Relation of Standard Gelatin and Stone's Gelatin to Time of Liquefaction

Culture Number	Number of Hours First Liquefaction Was Noted: A.P.H.A. Standard Gelatin (1907)	Number of Hours First Liquefaction Was Noted: Stone's Gelatin	History of Cultures	Source
B2	24	24	Illinois State Department of Health	Milk
*3	..	..	Lister Institute	Cake
*8	2,080	48	University of Chicago	Cake
*9	24	24	Lister Institute	Chicken gravy
*42	2,080	48	Lister Institute	
*95A	48	24	University of Chicago	Cream filled cake
*95B	24	48	National Institute of Health	Cream filled cake
*95C	24	24	Lister Institute	Cream filled cake
*135	2,080	912	Lister Institute	Infected compound fracture
*137	48	912	National Institute of Health	Abscess on thigh
173E	24	24	U.S.D.A.	Cream pie filling
35,556–B7	48	48	U.S.D.A.	Pickled tongue
35,556–B9	24	48	U.S.D.A.	Pickled tongue
35,556–B13	24	48	U.S.D.A.	Pickled tongue
35,556–B14	24	24	U.S.D.A.	Pickled tongue
49,711–B1	24	912	U.S.D.A.	Cream filled pastries
49,711–B2	24	48	U.S.D.A.	Cream filled pastries
49,711–3P7	24	48	U.S.D.A.	Cream filled pastries
49,711–3P12	24	..	U.S.D.A.	Cream filled pastries

* Strains originally obtained from Dr. E. O. Jordan

extract from 0.7 per cent to 3.0 per cent were used has shown that in most cases a gelatin which contains 2 per cent or more beef extract was more susceptible to liquefaction by the toxin producing micrococci than one with smaller amounts. These observations could not be confirmed in all cases, as the organisms varied somewhat in their rate of gelatin liquefaction with increased amount of meat extract.

It will be noted that the onset of liquefaction was exceedingly slow for many of the strains. It is debatable whether an organism which takes nearly 3 months to begin liquefaction should be considered as a liquefier in the same sense as other strains which produce demonstrable liquefaction in relatively few hours.

The toxin producing micrococci appear to be ubiquitous in nature. They are found in many sources and may be prevalent in many types of food. A study of the udder flora of over 7,000 cows shows that over 20 per cent discharge an orange liquefying micrococcus similar in cultural characteristics to the toxin producing types. However, there was no evidence of toxin production judged by effects on the consumers of their milk. A study was made of 32 chicken pies served at public suppers, in which relatively accurate information was available as to any effects of preformed toxins. In all relatively large numbers of orange liquefying micrococci were found but no evidences of gastrointestinal disturbances were noted in any of the consum-

TABLE II

Effect of Per cent of Beef Extract Upon Liquefaction of Gelatin by Food Poisoning Micrococci

	Number of Hours First Liquefaction Was Noted in Increased Percentages of Beef Extract			
Culture No.	*0.7*	*1.0*	*2.0*	*3.0*
B2	48	24	24	24
3	..	..	..	..
8	1,400	1,400	144	144
9	168	168	48	48
42	1,400	1,400	240	144
95C	24	24	24	24
95A	168	48	24	48
95B	336	168	168	48
135	2,080	2,080	2,080	720
137	336	336	144	240
173E	168	48	24	48
35,556–B7	1,200	720	48	48
35,556–B9	168	48	24	24
35,556–B13	168	168	144	48
35,556–B14	336	168	144	144
49,711–1	1,200	720	144	144
49,711–2	960	48	144	48
49,711–3P7	1,400	720	144	48
49,711–3P12	168	168	48	48

ers. These micrococci were identical with the toxin producing types with the exception of the toxin producing property. It is apparent either that the toxin producing types are widely distributed in nature requiring conditions favorable to toxin production, or our present cultural reactions are inadequate for their identification.

If these types are so apparently widespread and in most instances retarded in their ability to produce toxin, information is necessary as to the factors which might inhibit their development in food when present. Certain ingredients in prepared foods are known to have an inhibiting effect on the growth of organisms. Information is lacking on the effect of these substances on the growth of toxin producing micrococci. A study was made (Table III) of the effect of sucrose upon these organisms and the minimum amount which must be present to inhibit their growth. Increasing amounts from 20 to 50 per cent sucrose were added to veal broth which was subsequently heavily inoculated with 2 standard strains of toxin producing micrococci then incubated at 37° C. for 18 days. The toxin producing micrococci developed in relatively high concentrations of sucrose. For the first 24 hours growth was vigorous in concentrations

TABLE III

Effect of Sucrose Upon Growth of Food Poisoning Micrococci

		Number (million) Organisms per c.c. in Increasing Percentages of Sucrose							*Number of Organisms (millions) in Inoculum*
Culture	*Time of Incubation*	*20*	*25*	*30*	*35*	*40*	*45*	*50*	
95	24 hours	1,790	5,190	2,500	1,570	1,300	2,340	3,090	28
	48 hours	3,070	2,420	3,180	1,890	1,780	2,530	2,890	
	5 days	3,920	6,400	3,120	52	601	410	348	
	14 days	15	970	1,930	....	....	....	....	
	18 days	....	....	....	....	....	....	....	
42	24 hours	1,920	2,570	2,850	2,160	3,950	3,030	2,930	476
	48 hours	3,570	3,580	3,100	3,290	1,780	2,640	2,280	
	5 days	5,000	6,000	255	2,640	3,100	14	113	
	14 days	5,200	710	16	91	1,090	....	....	
	18 days	....	....	93	....	....	....	....	

as high as 50 per cent. During the second 24 hours, growth was materially checked in the higher concentrations although no decided reduction in number was apparent. At the end of 5 days, the numbers of micrococci were materially reduced, probably not through the action of the high concentrations of sugar alone, but due in part to the presence of the acid developed in the medium. Repeated observations showed that from 5 until 18 days the number of organisms in the higher percentage of sucrose rapidly decreased. In a medium containing 35 per cent of sucrose or more the organisms were practically all inhibited or killed at the end of 18 days. At the end of 14 days it was found that 20 per cent of sucrose broth was sufficient to reduce materially the number of organisms. The acid produced by the organisms in the medium is not an important factor in itself, in this case, as an increased amount of sucrose did not increase the amount of acid formed. The amount of acid produced was as great in the lower as in the higher concentrations. The combined action of the acid and sucrose may have been responsible for the reduction in number of viable micrococci in the flasks containing the larger amounts of sucrose.

Similar experiments were carried out with various concentrations of sodium chloride. It was noted that the toxin producing micrococci are somewhat resistant to all concentrations of sodium chloride up to and including 12 per cent, although in concentrations as low as 6 per cent growth was materially inhibited as compared with the controls containing no sodium chloride. It is no doubt difficult to obtain sufficient practical concentration of sodium chloride foods to inhibit definitely the growth of all the cells contained in cultures of toxin producing micrococci. Sodium chloride appeared to have no killing effect, as the numbers after 48 hours' incubation remained approximately constant through the 18 day incubation.

Similar experiments were done using various amounts of acetic acid as the inhibiting agent. Veal infusion containing as a minimum 0.05 per cent and increasing to 0.25 per cent was prepared and inoculated with 2 strains of toxin producing micrococci. It was found (Table V) that acetic acid has a very definite inhibiting effect. Concentrations as low as 0.05 per cent materially reduced the growth rate below that found in the control containing no acetic acid. Concentrations as low as 0.15 per cent at the end of 48 hours brought about a decided reduction in the number of organisms, while at the end of 7 days, media containing 0.2 to 0.25 per cent were practically free of organisms. In contrast to the effect of sucrose and sodium chloride, acetic acid had an inhibiting effect in low dilutions and a definite killing effect in higher concentrations.

TABLE IV

Effect of Sodium Chloride Upon Growth of Food Poisoning Micrococci

Culture	Time of Incubation	Number (million) of Organisms per c.c. Found in Increasing Percentages of Sodium Chloride							Number of Organisms (millions) in Control
		6.0	7.0	8.0	9.0	10.0	11.0	12.0	
95	24	520	410	340	420	310	140	50	1,040
95	48	400	320	380	268	270	186	136	1,430
42	24	540	260	250	260	220	270	160	550
42	48	320	213	210	258	195	140	125	1,000

TABLE V

Effect of Acetic Acid Upon Growth of Food Poisoning Micrococci

Culture No.	Time of Incubation	Number of Organisms (million) per c.c. in Increasing Percentages of Acetic Acid					Number of Organisms (millions) per c.c. In	
		0.05	0.10	0.15	0.20	0.25	Inoculum	Control
95	24 hours	1,470	170	3,960	7,200	0.2	7	2,400
	48 hours	1,450	590	0.7	....	....		2,090
	4 days	2,900	890	....	....	....		3,490
	7 days	1,870	1,350	....	....	....		2,680
42	24 hours	350	179	59	2	0.1	27	1,270
	48 hours	265	330	153	....	....		1,400

TABLE VI

Associative Action of Acetic Acid, Sucrose, and Sodium Chloride on the Growth of Food Poisoning Micrococci

Culture No	Time of Incubation	Number (million) Organisms per c.c. In			
		Sucrose 30% Sodium Chloride 10% Acetic Acid 0.10%	Sucrose 35% Sodium Chloride 11% Acetic Acid 0.05%	Inoculum	Control
95	24 hours	40	35	15	960
	48 hours	100	150		1,220
42	24 hours	35	34	19	750
	48 hours	58	48		1,250

Work of Pederson and Breed [4] has indicated that a combination or associated action of various inhibiting agents might take place when each agent in this combination is used in a per cent which when used alone was not sufficient to inhibit growth. With this in mind 2 media were prepared, one which contained 30 per cent sucrose, 10 per cent sodium chloride, and 0.1 per cent acetic acid, and the other 35 per cent sucrose, 11 per cent sodium chloride, and 0.05 acetic acid. Any one of these ingredients in the percentage used, if used alone would not materially inhibit growth. However, when used in combination (Table VI) a decided inhibitive action was apparent. In this particular experiment, 15,000,000 organisms were inoculated into these 2 media as well as the control. At the end of 24 hours, although a small amount of growth had taken place, it was materially less than that in the control.

It is apparent that types indistinguishable culturally from the toxin producing micrococci are widespread in milk and food products. It is also indicated that sucrose and sodium chloride have very definite inhibiting action upon the growth of the toxin producing micrococci, while small percentages of acetic acid not only inhibit but reduce the number of these organisms in veal infusion broth media. These ingredients were found to act in lower concentrations as inhibiting agents when used together than alone.

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Recent Trends in Pellagra*

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IN the early part of the present century two important but opposing views were advanced as to the cause of pellagra—one that it was of infectious origin, probably excreta-borne; the other, that it was of dietary origin, probably resulting from eating deteriorated foods. Eating "musty corn" was quite generally believed to be associated with the disease. These theories were, however, abandond when the brilliant investigations of Goldberger and his associates disproved the infection theory beyond any reasonable doubt and at the same time proved that the disease was of dietary origin. There are those who still refuse to accept this point of view and continue to espouse the infection theory.

Pellagra is principally a rural problem. It occurs mostly among tenant farmers of the South and among those who, through close association, have acquired similar food habits. It occurs less frequently in urban centers where the populace has access to a larger variety of foods in modern grocery stores, and where economic conditions do not become quite so distressing during hard times as they do for tenant farmers. The latter obtain their food at plantation commissaries or corner grocery stores which carry only a limited number of staple articles of diet. Antipellagra foods such as milk, lean meat, and vegetables are generally lacking. Except for some family gardening introduced in recent years, tenant farmers do not raise their own produce as do the independent farmers of other sections of the country. When hard times strike they find it necessary to restrict their diet even more than usual to those few staples that lack the essentials for health. It is then that the incidence of pellagra and the death rate begin to increase.

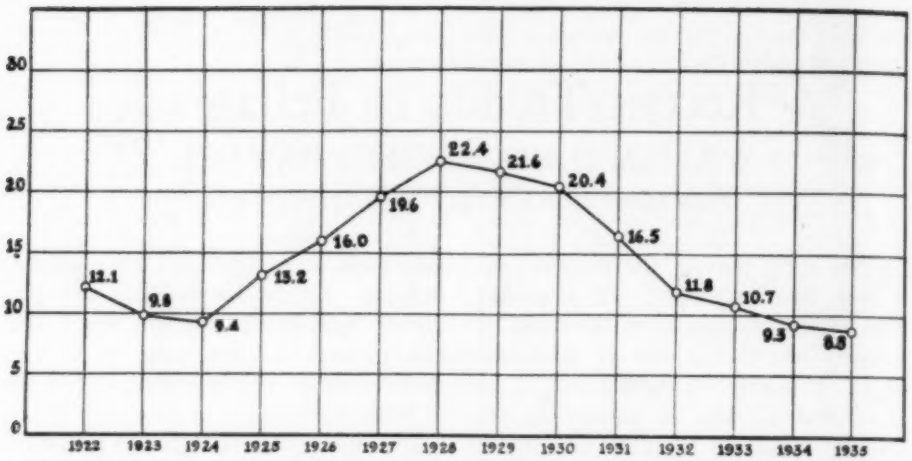
Goldberger and others frequently called attention to the relationship between the incidence of pellagra and economic conditions. They did not, however, distinguish between industrial and agricultural depressions, assuming perhaps that they were one and the same, which is not always the case.

The last agricultural depression began during the early post-war period, while the industrial depression did not begin until after 1929. Prices of farm lands and produce began to drop everywhere as early as 1920 and 1921, and continued until conditions on the farm became very distressing in some sections of the country, even long before the memorable crash of 1929. Pellagra began to increase at a rapid rate after 1924, reaching its peak about 1928. After that it began to decrease and has continued to do so to the present.

I call attention to this rise and fall because it indicates that trends in pellagra are more closely related to economic conditions in agriculture than industry.

* Read before the Food and Nutrition Section of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, La., October 21, 1936.

FIGURE I



AGGREGATE DEATH RATE PER 100,000 FROM PELLAGRA IN THIRTEEN SOUTHERN STATES 1922-1935

Table I and Figure I show that the highest aggregate death rate for the 13 states where the disease prevails most extensively occurred in 1928. The rate increased from 9.4 in 1924 to 22.4 in 1928, an increase of 58 per cent. The aggregate rate for 1935 is 8.8, which is 60 per cent below the rate for 1928. This decrease varies in the different states from 43 to 74 per cent. These rates, namely 22.4 and 8.8 are the highest and the lowest aggregate rates respectively ever recorded for these states. In at least a few states pellagra was one of the first causes of death during the 2 or 3 peak years. It looks now as though this disease may be on the way out as a serious public health problem if the factors responsible for this unprecedented decrease remain in force.

The cause of the increase prior to 1928 is very evident but the cause of the decrease since that time, during the worst period of the depression for agriculture as well as industry is a matter of some speculation. Circumstantial evidence, however, points very strongly to 2 measures—the promotion of gardening and the use of pure powdered yeast. Both projects were introduced by the Red Cross in 1927 in the flood areas of 4 states in the Mississippi Valley—Mississippi, Arkansas, Louisiana, and Tennessee. The following years they were extended into other states. By 1929 the majority of health departments in the 13 states referred to participated in a yeast distribution program.

During the period from 1927 to 1935 inclusive, the Red Cross distributed some 500,000 lb. of yeast through its chapters, health departments and physicians, and well over 750,000 packages of garden seeds. Even larger quantities of both yeast and seeds were distributed by health departments, farm bureaus, and relief agencies.

The largest seed distribution by the Red Cross was made in the spring of 1931, when 611,000 packages containing from 13 to 18 varieties of seeds were distributed to as many families. Each package weighed about 4 lb. and contained seeds sufficient to plant from ¼

to ½ acre. Literally, thousands of acres of fertile land were converted that year into gardens in sections of the country where gardening had become a lost art. Families that had depended upon cotton or some other "cash crop" for trading at the grocery stores and commissaries, now raised part of their own food supply. Canning and other methods of preserving foods for winter use were also introduced. Thousands of families were thus able to supplement the food they obtained from the grocery store with "protective foods" grown in their own gardens. There can be no doubt as to the health value of this simple but effective measure.

Absolute proof that the two projects referred to were responsible for this reduction is lacking and can be obtained only through carefully controlled field experiments. There is no record of such experiments. Goldberger and others have repeatedly proved the antipellagra value of milk, lean meat, certain vegetables, pure yeast, and other foods. However, the experimental application of this knowledge in the civilian population on a sufficiently large scale to determine the relative value of these measures under controlled conditions is lacking. A large number of local health officers either independently or in coöperation with the Red Cross have distributed powdered yeast among pellagra families. Several have kept records of the distribution and tabulated results. Similarly, a number of agencies participated in promoting gardening, but we do not know of any instances where a control group was set up with which to compare results. In spite of that, considerable evidence has accumulated to indicate that gardening and pure yeast have been very effective measures.

Space does not permit quoting extensively from reports and letters of health officers, physicians, and others, a large number of which accumulated in our files. They nearly all agree that gardening and the use of powdered yeast, together with the educational efforts necessary to introduce these projects, have been largely responsible for this recent downward trend. One county health officer reports:

> In 1931 there were 1,313 cases of pellagra reported in the county and 890 packages of yeast (2 lb.) were given to the indigent patients. In 1932 the number dropped to 331, which indicates that the yeast has been effective in controlling the disease.

Others write as follows:

> We consider gardening an essential factor in the control of pellagra and probably largely responsible for the downward trend. . . .
>
> I believe that powdered yeast as an emergency measure in the absence of an adequate diet is most effective. . . .
>
> Growing gardens is encouraged generally by the planters among their tenants. . . .
>
> It is our impression that commissaries and grocery stores keep salmon and other antipellagra food in stock more than in former years. . . .

These quotations are representative of the views expressed by a large number of health officers and physicians who have had opportunity to observe the application of these measures.

Table I of death rates also seems to indicate some relationship between the time these measures were introduced and the beginning of the downward trend. For example, the distribution of garden seeds and yeast was started in Arkansas, Tennessee, Louisiana, and Mississippi in 1927. That was also the peak year for 3 of these states. Mississippi had a slight increase the following year. The distribution was extended to neighboring states in 1928, among these Kentucky, Alabama, and Georgia, 2 of which had their highest death rate that year. Oklahoma and Texas were among the last to introduce powdered yeast. Their highest rates occurred in 1930. That coincidence at least adds

TABLE I

Death Rates from Pellagra per 100,000 Estimated Population (U.S.P.H.S.) for the Years 1922 to 1935, Inclusive

State	*1922*	*1923*	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*	*1930*	*1931*	*1932*	*1933*	*1934*	*1935*	*Per Cent Reduction from Peak Year*
Virginia	4.6	3.3	3.2	4.1	4.8	6.5	8.0	9.4*	9.0	8.3	5.3	4.8	4.8	5.3	43
North Carolina	12.2	8.6	9.9	13.2	15.4	22.3	27.8	30.3	32.4*	21.6	14.8	12.0	13.0	11.3	65
South Carolina	25.2	19.5	19.7	25.4	32.8	44.8	57.8*	54.4	45.2	33.7	24.9	18.8	17.4	14.9	74
Georgia	17.2	15.1	11.5	12.6	14.6	21.2	29.6	30.2*	24.4	19.5	17.0	14.3	10.7	10.9	63
Florida	10.1	8.9	8.6	10.2	10.2	16.6	21.0	22.0*	16.1	14.5	13.1	12.3	14.3	11.2	49
Kentucky	3.0	2.7	2.3	3.5	5.7	6.2	6.9*	5.1	4.9	4.2	2.6	3.5	2.2	2.4	65
Tennessee	11.3	12.2	10.7	15.4	21.1	23.8*	20.3	15.9	15.5	11.4	10.9	8.6	8.0	7.4	69
Alabama	16.6	15.4	14.6	16.5	19.8	21.7	27.0*	25.4	24.0	16.9	13.2	13.8	11.1	9.0	67
Mississippi	24.4	21.9	23.0	29.9	29.2	36.2	38.3*	37.8	28.4	27.8	17.3	15.0	11.1	11.3	70
Arkansas	11.3	12.1	9.0	17.3	27.0	35.9*	34.5	27.9	26.2	23.0	11.8	12.1	9.3	9.3	74
Louisiana	7.2	8.0	9.6	18.0	13.5	16.9*	16.1	13.7	13.0	11.4	8.3	9.0	6.7	6.4	62
Oklahoma	4.7	3.0	2.6	5.6	8.9	7.8	10.2	11.8	12.5*	9.9	6.1	4.4	4.2	4.7	62
Texas	....	5.0	5.7	10.3	13.6	14.5	15.1	15.0	18.9*	17.6	11.8	11.9	9.5	9.9	47
Aggregate rates	12.1	9.8	9.4	13.2	16.0	19.6	22.4*	21.6	20.4	16.5	11.8	10.7	9.3	8.8	60

* Peak year. 1935 rates are provisional.

to the weight of circumstantial evidence.

There is some evidence that where either gardening or the distribution of yeast is discontinued the disease again increases. That occurred in at least one state after the Red Cross discontinued both projects in 1932. It was believed that their value had been sufficiently well demonstrated to be continued through local initiative, but this did not prove to be the case. The rate in that state increased in 1934 and again decreased in 1935 when the distribution of yeast was resumed.

All of this is circumstantial evidence, but it seems to be quite convincing. Such evidence should be accepted until more scientific proof is available. Scientific medicine has made progress that way through the years and it will continue to do so. It will develop measures that are born of experience and observation as well as through experimentation. It is hoped, however, that some one will conduct the field experiments necessary under controlled conditions to determine not only the relative value of these measures, but also whether all or nearly all deaths from pellagra in a given area can be prevented by these or other measures. Considering the progress made in recent years, that does not seem at all impossible, and is worthy of careful study.

Relief measures may have had some influence on this downward trend, but only to a limited extent. The relief program did not start on a national scale until the fall of 1930 following the devastating drought. Federal relief did not begin until 1933. The downward trend was well under way long before that time. Local relief efforts were too scattered to influence materially this situation in all these states.

Pellagra can eventually be prevented only through the use of proper foods, among which vegetables are all important. Milk, lean meats, liver, and fish are also valuable antipellagra foods, but

for economic reasons are not available in sufficient quantity to a large part of the farm tenant population of the South where the disease prevails most extensively. Until economic conditions for these people are improved and their food habits changed, they cannot or will not include these articles in their diet. Experience indicates that they can and will use garden produce. Gardening therefore occupies a unique place in the pellagra control program.

Pure powdered yeast occupies an equally important place in this program. For those who have developed symptoms of pellagra and for those who cannot or do not use the foods they need to prevent this disease, pure yeast is most valuable. It contains the pellagra preventive in quantity and form especially well tolerated by patients complaining of digestive disturbances, which is very common in pellagra. That cannot always be said of other antipellagra foods. Pure yeast is unusually well suited for treatment purposes, and it is comparatively inexpensive. It can be purchased at present for 19 cents a pound.

In the absence of other physical complications, 50 to 60 grams a day for from 6 to 10 weeks will relieve the individual of all symptoms of the disease and restore him to what seems to be a normal state of health even without any alteration in the regular diet. Smaller amounts are sufficient as a preventive.

The pellagra problem cannot be solved by ordinary educational methods. Even the most intensive efforts to spread information about dietary requirements will not suffice. That may be helpful to a few, but not to the vast majority of families who are victims of the disease by force of circumstances over which they have no control. It is not enough to tell them that milk, lean meat, and vegetables will prevent pellagra unless it is also made possible for them to obtain these protective foods without extra cost.

Pellagra is principally a poor man's disease and can be prevented only by measures within his reach. Family gardening and pure yeast, both of which are available at low cost, seem to meet these requirements best.

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The Public Health Nurse*

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FOR a good many years I have been both interested in and personally concerned with various aspects of the great public health movement and it is inevitable that anyone who has had that experience should come into touch with the nursing profession generally, and more particularly with the visiting nurse, and in these later years with the public health nurse with all that that term and that individual mean for the general welfare.

I remember very vividly the beginning of the organized campaign against tuberculosis in this country and how we conceived of that first as a campaign of education. It was a matter of mass education. It was based upon the dramatic discoveries of medical science and their obviously possible application to the prevention of disease and to the administration of that application by public health authorities. We must remember that in those earlier days the conceptions of public health administration were rather crude. Of course there were certain essential things recognized—a pure water supply, a pure milk supply, etc.—but public health officers busied themselves chiefly with minor and not very important things. I sometimes used to feel that they were often more concerned with what were rather esthetic considerations, such as sewer gas and other malodorous emanations. The objects were rather unpleasant but were not very dangerous.

Then came a completely new conception. And in this tuberculosis campaign we found, I say, that the first thing to be accomplished was the education of the public. But soon we began to realize that after all it is not simply the education of the masses, except for the creation of a public opinion that would support official effort, that was necessary. But in the last instance if we were to get results we must come down to the individual and to his individual health habits. And the individual in his health habits is not to be reached effectively by the propaganda of organized agencies; he is going to be reached by the individual. And so we came to realize that the essential individual in this work was the visiting nurse, that there was nothing quite equal to her and her possibilities in the application of the knowledge of which I have just spoken.

In saying that, one recognizes, of course, the indispensability of the medical profession and of the public health officials and of an enlightened public opinion.

Now what we found in the field of tuberculosis was found in the same way in the organized campaign against that civic blot of infant and child mortality, as well as in the case of various preventable or infectious diseases. We are seeing it now in certain of the enemies

* Address before the Silver Jubilee Luncheon Meeting of the National Organization for Public Health Nursing, Hotel Roosevelt, New York, N. Y., March 18, 1937.

that disable mankind; for example in the present campaign, too long delayed, which is being inaugurated on a wide scale against venereal disease. Other countries have demonstrated what can be done in checking the spread of syphilis and I am sure comparable results can be obtained in this country. And there remains another equally important challenge, and that is the whole field of mental hygiene, which calls for organized consideration in the same way.

Laboratories discover facts and it is one of the dramatic achievements of modern times that medical science has advanced as it has. And it is most encouraging that public authorities are coming to recognize that there must be created and maintained highly intelligent and competent official agencies with adequate resources to apply to the public welfare the facts and truths that have been discovered by medical science and whose applicability has been demonstrated by the medical profession. And in my judgment the agency that brings this possibility to a focus and accomplishes results is the public health nurse. I am very glad indeed of the opportunity of saying that as I have watched it from the sidelines during these 30 odd years I have come more and more to feel that without the public health nurse the efforts are ineffective.

To my mind one of the greatest events that have taken place in this country was that to which allusion has been made more than once this afternoon. That was the establishment in 1893 of the Henry Street Settlement. I wish to add my tribute to what Miss Wald has accomplished there, not simply as a contribution to New York City but to the entire country and to the world.[1] From that beginning has grown this great movement that we celebrate today.

Miss Fox in her remarks,[2] and particularly in her closing words pointing toward the future, emphasized the necessity of the adequate preparation of the public health nurse and the production of a much larger number of them. The problem today in my judgment in the whole public health field is the lack of adequate personnel, and I am speaking of the medical personnel as well as of the trained official and the public health nurse. There are communities today ready to take steps and there are not competent people to staff the effort. Further, with the development of the Social Security Act and its application in the future throughout this country, this need will become greater and more obvious. There has been a tendency to think that any person who has gone through a certain course, whether in medicine, or, in the case of a nurse, through a nursing school and has acquired those magical letters "R.N." is entirely adequate, entirely competent to take up this line of activity. The public health nurse to be successful demands qualities that are called for by no other group in the nursing field. The bedside nurse of course must be competent, but the task of the public health nurse calls not only for the training of an R.N. but for something more. In my judgment the public health nurse cannot be too highly trained. I can share the opinion of certain of my medical colleagues that we can do in certain cases of illness with nurses of less complete training but we cannot do without nurses of the highest quality and the highest training in this public health field. I would like to see more and more college women coming into the nursing schools, passing through them, taking up postgraduate work, and specializing in this public health field.

Now is it any wonder that, having come through these long years of watch-

ing and deep interest in the application of knowledge to the different fields of public health, I should welcome the opportunity of paying my tribute to what the public health nurse has done and to what the National Organization for Public Health Nursing has accomplished in leading the way and demonstrating the possibilities? That this organization is needed is beyond all question. That it will develop and grow is equally certain and necessary. My congratulations are to the N.O.P.H.N. for what it has already accomplished and I bid it God-speed for the future.

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IN JULY JOURNAL

Developing a Housing Program in a Southern City
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Practical Procedures in the Laboratory Diagnosis of Typhoid and Related Fevers
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Charles F. Craig, M.D.

Measurement of Error of Death Rates in the Colored Race*

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THIS subject can be considered in two ways: (1) as the measurement of error of total colored death rates. How complete is the registration of colored deaths? (2) It can also be interpreted as the measurement of error of the colored death rates from specific causes. How accurately does the total number of deaths from a specific cause give the actual deaths from that cause?

Probably all of us would answer the first question by stating that the registration is not complete. The question of the measurement of the error is more difficult.

Fifty-eight per cent of the colored population of the United States were living in 12 states of the South in 1930. This colored population of 8,042,000 was 99.5 per cent Negro and constituted two-thirds of the Negro population of the United States. The problem of measurement of error of colored death rates, meaning Negro death rates, centers mainly in this group of states rather than in other sections of the country. For this reason, and also to avoid some of the factors influencing colored death rates over the country, the present discussion has been limited to the colored death rates of this group of southern states.

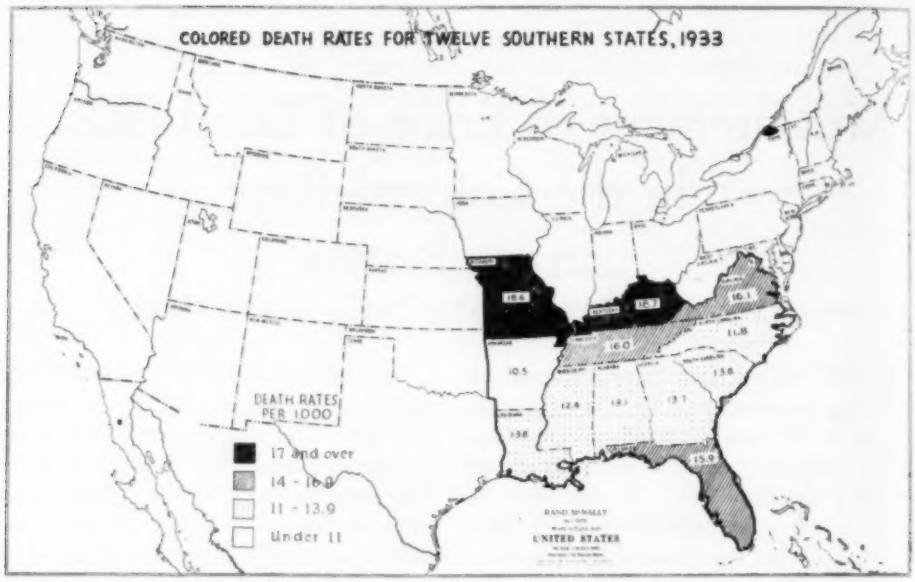
The colored death rates for these 12 states as given in the *U. S. Census Mortality Statistics* for 1933 are shown on the accompanying map (Figure I). The great variation in the colored death rates in this group of states, from 10.5 in Arkansas to 12.4 in Mississippi, 16.0 in Tennessee, and 18.7 in Kentucky, is noteworthy. The death rates of Louisiana, Mississippi, Alabama, Georgia, South Carolina, and North Carolina are low in comparison with those of Missouri, Kentucky, Tennessee, Virginia, and Florida. These colored death rates need further study with adjustments for many variables.

A correction for the difference in age composition of the colored population of the states is essential. The standardized death rates * which are given in Table I for comparison with the crude death rates do not show as much variation. The 4 highest rates—Kentucky, Missouri, Virginia, and Tennessee—are lowered, while a few of the lower rates are increased. However, the variations in these standardized colored death rates, from 10.5 in Arkansas to 16.4 in Florida, are much greater than would be expected. The white death rates for the same states for the period 1929–1931, as given by Dublin and Lotka,[1]

* Read before the Vital Statistics Section of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, La., October 23, 1936.

* The death rates are standardized on the basis of the age distribution of colored population of United States, 1930 Census

FIGURE I



do not show as much difference. The standardized white death rates of these same states vary from 9.3 in Arkansas to 10.9 in South Carolina. Although the period is shorter and the number of deaths smaller, the colored rates for other years show the same general relation.

The data for the urban and rural sections of these states show marked difference. Here the urban population has been defined as the population in the cities of 10,000 and over in 1930, and the rural as the remainder of the states. This definition was used to have comparable figures for all these states. The average urban death rate of 20.5 is 61 per cent higher than the rural death rate of 12.7 in 1933. These figures can be compared with the difference of 18 per cent in the crude white, urban and rural death rates in 1930, as given by Dublin and Lotka.[1] These are not resident figures, which are preferable for any discussion of urban and rural rates.[2] However, the experience in Tennessee has been that the colored people usually die at the place where they live and the correction to residence has not changed the total colored urban and rural rates by more than 3 per cent. This great difference between urban and rural colored rates is very puzzling. Probably the registration of colored deaths in the large cities is nearly 100 per cent. Should

TABLE I

Crude and Standardized Colored Death Rates per 1,000 Population of 12 Southern States, 1933*

	Crude	*Standardized*
Alabama	13.1	13.1
Arkansas	10.5	10.5
Florida	15.9	16.4
Georgia	13.7	14.1
Kentucky	18.7	15.4
Louisiana	13.8	13.8
Mississippi	12.4	12.7
Missouri	18.6	16.2
North Carolina	11.8	12.6
South Carolina	13.8	15.1
Tennessee	16.0	15.2
Virginia	16.1	15.5

* Standardized on the basis of the age distribution of the colored population of the United States, 1930 census

the *rural* rate be as large as the *urban* or what proportion of the urban? It may be that conditions in the rural area are more favorable for the colored population and that the rates are actually lower.

The amount of rural population differs in these 12 states. With the exception of Missouri, in which but 32 per cent of the colored population is rural, the percentages of the colored population in the rural area vary from 57 to 90. Account should be taken of this in considering the total death rates, or rural and urban rates should be studied separately. The rural rates when compared have practically the same relation in size as the total death rates. Arkansas has the lowest rural rate of 9.2, with the rate of North Carolina, 10.3, second. The rural rates of Missouri, Kentucky, and Virginia are high.

To go a little further into the study of rates in the rural area and to eliminate some of these factors, the colored death rates for Tennessee have been used. As it is difficult at this time to estimate populations for small areas and especially colored populations, the 1930 Census figures have been used as the basis for colored death rates. The resident colored death rates in Tennessee have been obtained for the average of the 3 year period, 1933–1935. The rates have not been calculated in counties where the colored populations were less than 1,000, as large variations in the rates would be expected, due to chance alone.

The variation in the death rates of the counties of Tennessee is very great. The counties with the large cities, that is, Shelby, Davidson, Hamilton, and Knox counties, have high rates. In Middle Tennessee, the rates are relatively higher than in West Tennessee, which has a large colored population. The colored population varies in these counties in West Tennessee with the largest percentage of colored population in Fayette County (73 per cent). The living conditions for the Negro in this section of Tennessee are probably nearly the same as in Arkansas and Mississippi. From a knowledge of conditions in the state, it would probably be expected that the rural rates in West Tennessee would at least be equal to or greater than those in Middle Tennessee.

The data for the rural counties of Middle and West Tennessee, in which the population was 10 per cent colored, have been combined and standardized rates obtained. The effect of standardization of death rates within the state can be seen in Table II.

TABLE II

Crude and Standardized Colored Death Rates for Urban and Rural Areas of Tennessee and Rural Counties in Middle and West Tennessee, 1933–1935*

Tennessee	*Crude Death Rate*	*Standardized Death Rate*
Urban Area	19.7	20.0
Rural Area	13.0	12.8
Fifteen Middle Counties	14.5	13.4
Fifteen West Counties	11.8	12.1

* The death rates are standardized on the basis of the age distribution of the colored population in Tennessee, 1930 Census.

Standardization of the urban and rural rates increased the difference. It decreased the difference in the rates of the counties in the two sections of the state from 23 per cent to 11 per cent. This difference of 11 per cent was probably due to better registration of deaths in Middle Tennessee. It could not be assumed that the registration of colored deaths was 100 per cent complete in Middle Tennessee; so with allowance for a failure to have some of the colored deaths in Middle Tennessee recorded, and a larger per cent in West Ten-

nessee, the rural rate would be increased to between 14 and 15. This is suggested as a minimum figure. It was hoped to learn through a survey more about the completeness of registration of colored deaths in the two areas. Due to the closing of some of the schools for the cotton picking season, a report on the survey cannot be given at this time.

These figures show the variations in colored death rates. As the variations are large even within the state of Tennessee, it is believed that they may be due to incomplete registration in the rural area.

The accuracy of the death rates from specific causes depends on many factors. First, the size of the rates will depend on the completeness of registration. Second, the accuracy of the death rates will depend on the quality of certification of causes of death and the amount of variation in the type of certification. The attendance at death and the certification of causes of death by physicians are essential.

The data for Tennessee for the 3 years, 1933–1935 (Table III), show the difference in the number of deaths certified by physicians in the urban and rural part of the state.

The percentage of deaths certified by physicians in the urban area was 94.0, with an additional 5.8 certified by coroners and health officers and 0.2 per cent by others or unknown. In the rural area 86.7 per cent were certified by physicians; 9.5 per cent of the deaths were not certified by physicians, coroners, or health officers, and were not considered certified correctly. The percentage of death certificates signed by physicians in the 15 counties of Middle Tennessee of 91.6 was 9.3 per cent greater than the percentage in West Tennessee of 82.3. These figures show that the correct certification of colored deaths in the rural area in Tennessee is not complete. In the 15 rural counties in West Tennessee, where the colored population is large, 17.7 per cent of the death certificates were not signed by physicians, as they were not in attendance at the time of death.

Complete data for these 12 states regarding attendance at death are not available. The deaths assigned to *ill-defined and unknown causes,* which include a large part of the deaths which were not attended by physicians can be used in connection with this problem.

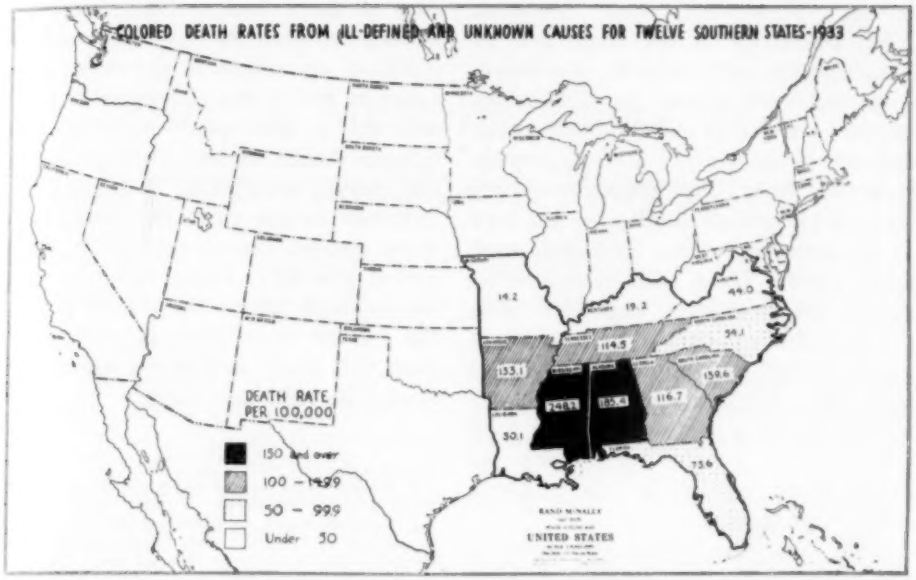
The colored death rates from ill-defined and unknown causes of death for 1933 are shown on the accompanying map (Figure II). The rates varied in this group of states, with low rates for Missouri, Kentucky, Virginia, and Louisiana. The death rates for Mississippi and Alabama are very high, with those for Tennessee, South Carolina, Georgia, and Arkansas over 100

TABLE III

Certification of Resident Colored Deaths for Urban and Rural Areas of Tennessee and Rural Counties in Middle and West Tennessee, 1933–1935

		Physician		*Coroner*		*Health Officer*		*Others or Unknown*	
Tennessee	*Total*	*No.*	*Per Cent*	*No.*	*Per Cent*	*No.*	*Per Cent*	*No.*	*Per Cent*
Urban Area	12,737	11,969	94.0	701	5.5	37	0.3	30	0.2
Rural Area	10,677	9,252	86.7	302	2.8	114	1.1	1,009	9.5
Fifteen Rural Middle Counties	3,464	3,173	91.6	9	0.3	63	1.8	218	6.3
Fifteen Rural West Counties	5,198	4,277	82.3	271	5.2	27	0.5	623	12.0

FIGURE II


COLORED DEATH RATES FROM ILL-DEFINED AND UNKNOWN CAUSES FOR TWELVE SOUTHERN STATES-1933
DEATH RATE PER 100,000
150 and over
100 - 149.9
50 - 99.9
Under 50
UNITED STATES

deaths per 100,000 population. In Mississippi, the cause of death was unknown in 1 in 5 deaths; in Alabama, 1 in 7. For the group as a whole, 8 per cent of the deaths were from ill-defined and unknown causes. This large percentage of deaths from unknown causes invalidates any discussion of colored death rates from specific causes. It is not known how the 2,547 deaths in Mississippi and 1,767 in Alabama should be distributed among the different causes of death. It cannot be assumed that these deaths distribute equally among all causes or age groups, as many factors are responsible for the causes of death being unknown. For instance, while 8 per cent of all deaths are assigned to unknown causes, 23 per cent of the deaths under 1 year of age fall into this group. In fact, in Mississippi the causes of death were unknown in 49 per cent or practically one-half of the deaths of infants under 1 year of age.

The death rates from ill-defined and unknown causes on this map can be studied in relation to the map of total death rates. The states with the high total death rates do not have as high death rates from unknown causes. Among the states with low death rates, the rates from this group of unknown causes vary. The certificates for these deaths without medical certification are the ones that are difficult to have filed. In some instances undertakers may not be employed and the families of the deceased may not know the vital statistics laws. The registration of these deaths is a difficult problem. The size of rates from unknown causes may in part relate to the efforts of officials to get the certificates filed.

Colored death rates from specific causes have been obtained for 1933 for these states. These should be studied by urban and rural areas and corrected for a standard age composition of population. The maps of uncorrected death rates in general are similar to those of total death rates. For instance, the colored death rates from diseases of the heart are high in Missouri, Ken-

tucky, and Virginia, and low in Arkansas, Mississippi, and Alabama. What percentage of the death rate of 248.2 deaths per 100,000 population from unknown causes in Mississippi should be added to the death rate from diseases of the heart? It is impossible to answer this. The tuberculosis, cancer, and pneumonia death rates are high in the same states that have high total death rates. These rates from specific causes are negatively correlated with the rates from ill-defined and unknown causes. With the additional knowledge that other deaths are probably not recorded in these states with low total death rates, conclusions cannot be drawn about the relative size of death rates from specific causes.

This discussion points out some of the errors in the use of colored death rates. The total colored death rates vary far more than would be expected. Within the State of Tennessee, a large variation was shown in the rates of the counties, and it was suggested that this was due to incomplete registration of colored deaths in the rural area. As the death rates from ill-defined and unknown causes vary, the death rates from specific causes cannot be interpreted literally. These variables must be removed before the actual size of the colored death rates is known, and until that time, the colored death rates should be used cautiously.

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Supplement to July Journal

Place of Mental Hygiene in a Provincial Health Program*

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IT is the intention in this paper to describe briefly the manner in which mental hygiene has been made a significant part of the Provincial health program in Ontario. Since the effective integration of mental hygiene and physical hygiene in our program has been made possible by a somewhat unusual type of administrative organization, it will be useful to indicate at the outset something of the nature of this organization.

In Ontario, the Provincial Department of Health is responsible for the maintenance of such public health services as those provided by the Divisions of Preventable Diseases, Maternal and Child Hygiene, Public Health Nursing, Tuberculosis Prevention, Sanitary Engineering, and the Provincial Health Laboratories. In addition to these typical public health activities however, the Ontario Department of Health is also directly responsible for the maintenance, supervision, and administration of the Province's 12 mental hospitals.

The administrative inclusion of these mental hospitals within the Department of Health has had a considerable influence on the development of our public health program. It has meant that the specialized facilities in each of the various divisions mentioned above have been made immediately available to our mental hospitals. The medical inspectors in each of these divisions have become directly responsible for the supervision of their special aspect of health work as it applies in mental hospitals.

Thus, for example, the Division of Tuberculosis Prevention has been made responsible for this aspect of the medical care of mental patients. A careful survey of the entire mental hospital population, including both patients and staff, was completed 3 years ago. As a result, a separate mental hospital unit was established with suitable facilities for the specialized treatment of mental patients suffering from active or incipient tuberculosis.

Corresponding contributions have been made by the other public health divisions in respect to their particular fields. Inspectors from the Nursing Division have been made responsible for the supervision of nursing services and training schools in mental hospitals. The Division of Dental Services has supervision of the dental care of mental patients. The maintenance of proper sanitary conditions in mental hospitals has been made part of the responsibility of the Division of Sanitary Engineering.

Without further enumeration of the services concerned, it will be seen that each of the public health divisions be-

* Read before a Special Session of the American Public Health Association at the Sixty-fifth Annual Meeting in New Orleans, La., October 20, 1936.

comes responsible for some aspect of mental hospital work. One consequence of this is that our mental hospitals benefit from specialized supervision of their various services. Another, which is of particular interest here, is that the other public health divisions are made aware of the problem of mental disease. An exclusive emphasis on problems of physical disease is no longer possible. The fact that there are a larger number of patients in our mental hospitals than there are in all of our general hospitals, Red Cross hospitals, tuberculosis sanatoria, and hospitals for incurables combined, makes it evident that exclusive attention to the physical aspect of public health is not justified. Facing definite responsibilities in respect to mental hospitals, the various divisions of the Department of Health develop a much broader and more comprehensive view of the scope of public health work.

This direct contact with the problems of mental disease has a far-reaching effect on the attitudes of public health workers in other fields of activity. There develops an increasing recognition of the importance of those mental health problems which so often accompany and complicate physical illness. Since the inspection of general and private hospitals, and the amount of state aid granted to them, are matters which fall within the jurisdiction of the Department of Health, it has been found possible to do much to encourage a more adequate recognition of this mental hygiene aspect of the public health problem.

There are certain important implications which grow out of the idea that the problem of mental disease is essentially a public health problem. Applying in this field the same method of approach which has been applied almost universally in other fields of public health effort, it follows that we should shift our emphasis from the remedial treatment of those who are ill to the preventive treatment of those who are becoming ill. The value of this approach has been repeatedly demonstrated in respect to other public health problems. Moreover, our traditional pessimism regarding the inevitability of mental disease has given way, in the last quarter of a century, to a moderate optimism regarding the possibility of its prevention. In certain of the mental diseases, including some of those which contribute most heavily to our mental hospital population, there is already sufficient evidence of the value of preventive treatment to warrant a serious effort being made in this direction.

A preventive approach to the problem of mental disease presents certain difficulties, not the least of which is that it takes us out of the institution and into the community. It requires the development of a specially trained field staff, capable of identifying the early symptoms of poor mental health as they occur among people in the community, and ready to institute intensive preventive treatment in the earliest stages of illness. It was with a view to the development of such a field staff that the Department of Health instituted in 1930 a Mental Health Clinic service as part of its public health program in Ontario.

Before describing this service as it is now operating, it will be necessary to indicate something of its origin and development. In June 1930, the Province authorized the establishment of 6 travelling clinics to provide a preventive mental health service in the community. Before putting such clinics into operation, a special training course was arranged for prospective staff members. Those in attendance were addressed by persons with practical experience in the organization of similar programs, and were given an oppor-

tunity to meet representatives of the various agencies who would later be referring cases for examination. A special effort was made to see that they became familiar with existing community facilities for the treatment of the problems with which they would have to deal.

Following this, the clinics were one by one put into operation. The Province was divided into 6 large geographical areas and each clinic was organized as a travelling out-patient department attached to the staff of one of the mental hospitals in each area. Each clinic was staffed with a psychiatrist as director, assisted by a psychologist and a psychiatric social worker. The 3 members of the clinic operated as a team, all seeing each case and making their particular contribution to the solution of the problem presented.

Thus our Ontario Mental Health Clinics began operation much according to the general pattern of child guidance or mental hygiene clinics elsewhere. Although they have been considerably modified since that time, this initial approach seems to have been desirable in that the established agencies in the community were already somewhat familiar with the child guidance idea and almost immediately extended their full coöperation not only in referring cases for examination but in assisting with the treatment recommended.

These travelling clinics visited regularly more than 100 examining centers in cities, towns, and villages throughout the Province. During 6 years they have had nearly 15,000 cases referred for examination, more than half of which presented problems requiring follow-up treatment and have repeatedly returned to the clinic for this purpose. A very wide variety of problems have been encountered, not all of which could be said to represent early symptoms of mental disease in any strict sense. Naturally a large number of the cases at first referred to the clinics presented problems associated with mental defect or juvenile delinquency. In the majority of the cases of feeblemindedness the clinics were able to arrange a satisfactory community adjustment by supervising a special home training course prepared by the research division of the Ontario Hospital Training School, at Orillia. In more than 1,000 cases this special assistance given to parents or others concerned, rendered institutionalization of the child unnecessary. The initial prominence of this type of problem has gradually decreased until now such cases represent only a very small proportion of the case load.

Problems directly relating to mental illness have greatly increased. Except in one or two of the large urban centers in Ontario, there are practically no psychiatric specialists in the community. Efforts have therefore been made by the psychiatrists in charge of the clinics to develop contacts with practising physicians and extend to them a special psychiatric consultation service. As a result, a growing interest has been shown by physicians in the community and an increasing number of cases have been reached in which preventive psychiatric treatment is indicated.

One of the most interesting features has been the marked change in attitude on the part of our own mental hospital staff. The clinics have helped to break down many of those barriers of fear and superstition which have for so long tended to isolate the so-called "asylum." It is not only that they have encouraged the development of a more healthy attitude toward the problem of mental disease in the community; they have also served to bring our mental hospital staff into more direct contact with psychiatric problems in the community. In fact, this two-way effect

on attitudes has proved to be one of the most significant accomplishments. Attached as they are to the regular staff of a mental hospital, the clinics have served to emphasize that the problem of mental disease cannot be adequately defined in terms of mental hospital treatment alone.

By the spring of 1936, community demands for clinic services, in respect to all sorts of social and community problems, had become so heavy that it seemed desirable to undertake a critical review of the activities of the clinics and their methods of operation. As a result it was decided to define more narrowly the objectives of the Mental Health Clinic Service in order that there should be less dispersion of effort and greater concentration on those aspects of the work which had a direct and demonstrable value to the Mental Hospitals Division of the Department of Health. A statement here of the defined and limited objectives which were selected for special emphasis will serve to indicate both the present method of clinic operation and the particular clinic activities which, in our experience, have proved most worthwhile.

The Ontario Mental Health Clinics have now adopted 4 primary objectives as a basis upon which to select cases for examination and as a guide for the further development of their program:

1. To attempt the early recognition and intensive treatment of those adults in the community showing specific pre-hospital symptoms of mental disease.

2. To assist in the community treatment of psychoneurotic and other less severe mental and emotional disorders among adults.

These 2 objectives represent a field of special work which absorbs most of the time and effort of the clinic psychiatrists. As clinic directors, they are of course responsible for the work being carried on by the other members of their staff in respect to the remaining clinic objectives mentioned later. Having had 5 years in which to train and test the dependability of their associates, they are now in a position to delegate responsibility for certain aspects of the work and concentrate their own efforts on the preventive psychiatric treatment of adults. In this work their effectiveness depends upon their success in developing favorable professional contacts with practising physicians in the community. This can be accomplished most readily and satisfactorily by having the clinic director work independently as a consulting physician. Since the clinic examination centers are for the most part located in general hospitals, the director is able to specialize in this aspect of the work and at the same time give the necessary minimum of supervision to the clinic work as a whole.

It is difficult, if not impossible, to measure exact effectiveness of a preventive program. For example, it is impossible to state the exact number of cases in which the occurrence of mental disease has been permanently prevented by the early psychiatric treatment instituted. Nevertheless, it can be readily demonstrated that in a very large number of cases the necessity for admission to mental hospital has been, so far, postponed. In the field of physical disease, our preventive efforts do not guarantee permanent physical health. That is too much to expect in either field. If we are able to prevent the immediate development of either a physical or a mental illness, we have performed a worthwhile service to the patient which is of considerable economic value to the state. A critical review of the work of the clinics indicates that the necessity for admission to mental hospital has been postponed in a sufficient number of cases over a sufficient time more than to justify the entire cost of operating the clinics.

3. To locate and treat children in the community who are showing the characteristics of those who later become mentally ill.

4. To assist in the early removal of recovering patients from mental hospital, and to prevent recurrence through their readjustment and supervision in the community.

We have thought it desirable to abandon the vague formula that any childhood problem at all is a legitimate mental health problem for our clinics. We are attempting to select for special emphasis those childhood characteristics which are the specific early symptoms of subsequent mental disease. It may be that our present knowledge of just what these specific symptoms are, is limited. We know that many mental diseases show a history of slow and gradual development and that a significantly large proportion of our present mental hospital patients when they were children were extremely seclusive, timid, shy, unsociable, and submissive. It therefore seems reasonable to direct special attention to this type of child.

There are many agencies in the community dealing with children and it appears desirable that in our preventive health program we should specialize on learning to identify and treat effectively those particular children who are most likely to develop mental illness. It is recognized that psychiatric advice may be of value in respect to many juvenile problems other than those strictly in the field of mental disease. It is our intention to emphasize the importance of certain symptoms of poor mental health in children which are apt to be overlooked by agencies primarily concerned with the more obvious problems of delinquency and aggressive maladjustment.

This problem of preventive mental health work with children is one which calls for much further scientific investigation as well as for the intensive treatment of carefully selected cases. It is in respect to this problem that the psychologists attached to the clinics are primarily concerned.

The social workers attached to the staff of the Mental Health Clinics have now had extensive psychiatric training. An experienced psychiatric social worker can greatly facilitate the reëstablishment of recovering mental patients in the community and recurrence can often be prevented by continued supervision by such a worker. This type of work can be done most efficiently and economically by a full-time psychiatric social worker, operating to a large extent independently of the other members of the clinic, though the clinic director may be called in consultation.

It will be seen that, although originally organized in the traditional pattern of a 3 member clinic operating as a team, this pattern has been modified and adapted to allow for greater specialization by an experienced staff on those particular activities which have proved most valuable in our health program.

The individual members of our clinic personnel are now in a position to undertake a certain amount of independent responsibility. Thus, the clinic director in his psychiatric consultations with physicians, the psychologist in his preventive treatment of children, and the social worker in supervising the after-care of recovering mental hospital patients, are encouraged to attack directly the problems which arise in their particular fields.

This specialization and concentration has been facilitated by reducing the emphasis usually placed on the filling out of record forms and the completion of elaborate case histories. After several years of practical experience each clinic member knows the type of information useful in dealing with the problem presented and is directly re-

sponsible for securing that information. Keeping elaborate records is of less importance than the direct and efficient treatment of practical problems.

Mental hygiene has a very definite and worthwhile place in our Provincial public health program. Operating as the out-patient staff of our mental hospitals under the supervision of the Chief Medical Officer of the Province, the mental health clinics recognize as their primary objectives the performance of those specific public health functions described above.

As a result of our experience in attempting to develop a mental health service as an integral part of the public health program in Ontario, there are certain general observations which it may be useful to report.

1. The basic problem in developing any such program is staff training. Although certain technical skills can be assured prior to appointment to clinic work, practical experience both in mental hospital work and in dealing with mental health problems as they occur in the community must be obtained. The nature of the clinic program and the methods of operation are primarily determined by the training and experience of the personnel.

2. Another problem of major importance is the attitude of the community toward the proposed program. Within our own Province, there are such marked differences in attitudes that no uniform procedure can be applied effectively over the whole territory. Fortunately these community attitudes are susceptible of change, and it is doubtful whether there has been any more significant contribution made by the clinics than the influence they have exerted on community attitudes toward mental health and mental disease.

3. Because of the nature of these two basic problems, staff training and community attitude, the place of mental hygiene in a Provincial health program cannot be arbitrarily defined at the outset. Both the training of staff and the development of favorable attitudes are matters which take time. An effective mental hygiene program must be thought of in terms of growth and development. Our experience in Ontario does not lead us to think that we or anyone else can put forward a ready-made plan which will offer a final or ideal answer to the problem. It seems essential that those concerned in the development of a mental health service in a public health program should begin with a recognition of the major problems and should remain sufficiently self-critical to revise their policy and methods as the program develops.

Need for and Value of an Intensive Program of Health Education in State Health Departments*

FELIX J. UNDERWOOD, M.D., F.A.P.H.A.
State Health Officer, Jackson, Miss.

IN the recent destructive tornado in Tupelo, Miss., a servant's house occupied by a colored boy collapsed. After being called repeatedly, the boy finally answered from a pile of débris, "I hears you, but I cain't get to you." This, in a measure, is the situation in many health departments today so far as health education programs are concerned. We have permissive legislation, the necessary machinery and instruments, aims and objectives without number. Yet, we are not effectively removing the barriers which separate us from the masses of people we should be reaching.

These barriers are the lack of information and consequent lack of understanding. No public health program can be successful unless it has the confidence and support of the people who benefit by it. Full support cannot be secured unless there is popular understanding of the purposes and objectives of the program. Health education is the business of enlightening the members of a community concerning the activities of the health department and the essentials of healthful living with the ultimate purpose of influencing them toward higher standards of health conduct. The entire program of health conservation depends largely on a health-educated community which has confidence in the health department.

The need and value, then, of an intensive health education program is obvious. Perhaps, it is more to the point to decide what constitutes an *intensive* program and how it may be attained. Health education is admittedly not one of the neatly pigeonholed activities of a health department. It has none of the gratifying definiteness of a toxoid immunization or even a nuisance abatement. Oftentimes the very fluidity of the subject and the difficulty of evaluating results are discouraging to the practically minded health officer. But educate his community, he must! He knows that. The problem is how to plan, organize, and administer this program of community education so that the majority of people will benefit by it. It is said that the final test of health education is not how much information is distributed, but how behavior is influenced.

The philosophy underlying the entire program of a health department should be educational. Every contact made by the health officer, the nurse, the sanitary inspector, and so on through the entire personnel to the office clerks, has

* Read before the Health Officers Section, American Public Health Association, at the Sixty-fifth Annual Meeting in New Orleans, La., October 21, 1936.

a potential educational value and is an opportunity which should be fully utilized. Granted that health education methods are constantly changing, there are certain fundamentals about which there is general agreement. A basic one is that the most effective health education is a natural outcome of the services of the health department. Every immunization given, every water supply installed or improved, the very technic of the sterilization of a hypodermic syringe, the disposal of waste, the keeping of records, should be, not ends in themselves, not merely immediate benefits to an individual or a community, but convincing arguments for better living.

Popular health instruction, planned primarily for adults, is one phase of health education which has received considerable emphasis. Its purpose is to inform people concerning public health problems, to advise them of the policies of the health department in solving these problems, to secure desirable changes of opinions and habits, and to stimulate tax payers and influential groups to action in acquiring necessary facilities for carrying on adequate health work. In addition to the invaluable health instruction given by physicians, nurses, and other professional workers to individuals and small groups, there is the need of mass health educational effort through the press, radio, lectures, films, bulletins, pamphlets, exhibits, and the like. In the effort to reach as many people as possible, the publicity program must not, however, become attenuated. Like good generals we must concentrate our forces at strategic points and hammer away at these points from every conceivable angle until we have made lasting impressions.

The questions of economy and finance being always with us, we find it necessary to reach effectively as many people as possible for the least expense. It is highly desirable to secure the active participation of influential and well educated individuals and the aid in definite projects of local and state-wide civic and social organizations. This coöperative effort of leaders and well known organizations in a community with public health officials magnifies the importance of public health work, multiplies educational effort, popularizes health teaching, and stimulates the entire health program. While public health officials should not become enmeshed in political or factional operations they must not neglect to interest the candidate for election or the victor of the campaign in local health activities. Invite him to inspect a newly installed school water system, to see a special piece of drainage work, to visit a grade A dairy or pasteurization plant, to watch an immunization program. If this is done for every legislator before he goes to the state capitol the task of obtaining appropriations for health work will not be great.

An intensive program of health education cannot afford to overlook positive coöperation with and training for the professional groups. The state department of health should have a close working relationship with other state departments and with the state medical, dental, nurses, and other associations. The health department should place at the disposal of physicians, nurses, dentists, social workers, teachers, and others all facilities possible—library, laboratory, pamphlets, information relating to the public health, and the aid of its various divisions. It is of the utmost consequence that public health workers have as allies, dentists and physicians in private practice.

Working coöperatively with medical schools, medical associations, with federal assistance or that of philanthropic agencies, a plan should be devised

whereby physicians of many years' practice may take postgraduate or refresher courses, and deserving and promising young men may be sent to medical school. In order to enable every Mississippi physician to have postgraduate lectures at home, the Mississippi State Board of Health for the past 2 years has employed specialists in obstetrics and pediatrics to give courses of lectures in various parts of the state. Conferences may be held with physicians, nurses, and advanced medical students in order to effect closer contacts with the health department and problems concerning the public health. In this vital matter of keeping informed as to the latest discoveries in medical science and trends in public health, the personnel of the health department must not be overlooked. Here again, fellowships and scholarships must be bestowed, refresher courses taken, study and observation trips made possible. A program of health education is not sufficiently intensive which does not include the training of teachers for health teaching. Here is a splendid opportunity for coöperative effort between the state departments of education and health. The advancement of public health needs teachers properly trained in the principles of health education.

And now we come to the last, but not least important, phase of an intensive health education program: health education in the schools. The health education of the child may be strictly a function of the department of education, but the child's health, as well as his education along health lines, is a responsibility of the department of health. Here as nowhere else can an efficiently functioning health program display so much unity, cohesion of purpose, and coöperation. The supervisor of health education may be a member of the department of education, or a member of the department of health with an official standing in the public school system. But that consideration seems of less importance than that both departments do everything possible in an advisory and active capacity to promote sound health teaching in a sanitary and wholesome environment with the coöperation of parents, of official and unofficial health agencies, of clubs, churches, and outstanding individuals of the community. A joint council from the departments of health and education may do effective planning for health teaching in the schools, teacher training, and follow-up activities designed to aid the teacher.

The need for an intensive health education program in state health departments is self-evident. The necessary equipment is available; we know the principal barriers. Shall we supinely declare, as did the unfortunate darky in Tupelo, "I hears you, but I cain't get to you!" or, shall we take a more aggressive attitude? True, we cannot do everything at once. I doubt if any state department of health can undertake from the beginning all the phases of the intensive program outlined. Even if it were possible, I doubt if it would be advisable. Advancements with which public opinion and confidence do not keep abreast are likely to fail. But there should be long-range, careful planning from the start, with the willingness to undertake the various details step by step, and to modify or change these details as circumstances demand. Do not expect unqualified success to follow swiftly on your efforts. Health education takes time and infinite patience as we all know. But time, patience, and hard work, with a little inspiration here and there have worked miracles before—they will again!

EDITORIAL SECTION

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THE PUBLIC HEALTH NURSE

IT may seem supererogatory to call attention to the address recently given by Dr. Livingston Farrand, President of Cornell University, on the 25th Anniversary of the National Organization for Public Health Nursing. It was a notable occasion of which that Organization has good reason to be proud. Not often does one find as much meat put so clearly in so few words.

We wish to endorse all that Dr. Farrand said, and to add that for a number of years, all of those interested in public health work have recognized the value of the nurse and, as he points out, this applies particularly, as far as public health work goes, to the public health nurse. One has only to examine the estimates in model budgets which have been formulated after a careful study and note the relatively large amounts recommended for public health nurses to realize the truth of this statement. The growth of the visiting nurse service in the esteem of public health workers generally, is evidence of the high class work the nurses have done, and also shows the necessity of their being.

In a paper so full of meat it is difficult to pick out certain parts which are more important than others. We wish, however, to emphasize two statements. Dr. Farrand expressed the opinion that the greatest problem in the whole public health field, broadly speaking, was the lack of adequate personnel, medical, official, and nursing. As has been pointed out many times, some of this lack is due to the unfortunate situation which exists in our country; namely, that public health work is not appreciated by the politician, and that practically all public health positions which are worth having are regarded as political plums. Tenure of office for public health workers is much needed. The lack of it has had a baneful effect on the decision of young men and women to prepare themselves adequately for such work with the intention of giving their lives to it. As Dr. Farrand said, the application of the Social Security Act is making this shortage of personnel more acute.

The second point he emphasizes—which might well be considered as a part of the first—is that all public health workers, doctors, administrators, and nurses, need special training. He warns nurses against accepting the "magical letters, R.N.," as being entirely adequate, and as certifying that a nurse is entirely competent to take up field work. The public health nurse especially requires qualifications called for by no other group in the nursing field. As an administrator of one of our great educational institutions, Dr. Farrand says that in spite of the staggering cost of higher education, he still holds that the public health nurse cannot be too highly trained, that it is a necessity; and he expresses the hope that more and more college trained women will enter nursing schools, and, having graduated from them, will take up postgraduate work—special work—in the public health field.

We feel sure that every member of our Association will join with President Farrand in the congratulations he offered to the N.O.P.H.N. and his Godspeed for their future.

MILLIONS OF PATIENTS [1]

UNDER this title, with subtitle, "What the League is Doing for the World's Health," Dr. Heiser has given us an excellent summary of health as a world problem, showing the beginnings of international coöperation in 1851, a more effective agreement in 1893, and a still more notable action in 1907, when the International Public Health Office was agreed upon and established in Paris one year later.

The League of Nations came into existence in 1920, and the Health Organization of the League of Nations took its present form in 1923. It consists of: (a) a General Advisory Health Council, (b) a Standing Health Committee, (c) a Permanent Secretariat. The Health Organization has worked effectively toward the following objectives:

1. Control of epidemics and other diseases: the collection and dissemination of epidemiological data
2. Standardization of sera and biological products
3. Unification of health statistics
4. Publication of health information
5. Interchanges of health officers
6. Coöperation with other League of Nations groups and international organizations.

Under each of the headings given, an enormous amount of work has been accomplished which we cannot here even summarize, further than to give, as an example, what has been tackled under heading 1—Malaria, Smallpox, Leprosy, Syphilis, Collection and Dissemination of Epidemiological Data, and Ship Fumigation. It is easy to see what a far reaching and tremendous task the Health Organization has undertaken. It is not too much to say that great success has attended its efforts in practically every field with which it has concerned itself.

This booklet is of unusual value and we wish for it a wide circulation. In spite of what the press has told us, it is safe to say that the average physician does not know much about the Health Organization or what has been accomplished by it. This information is here given to us clearly and succinctly.

This entirely inadequate review cannot well be brought to a close better than by quoting from the conclusion of the booklet itself:

> The health work quickly justified itself. Great epidemics have been checked. Re-settlement programs for thousands of refugees have been carried out. Adequate protection for the ports of the world, and ships entering therein, has been secured through quarantine measures.

National health administrations have reaped the benefits of mutual understanding and increased appreciation of each other's efforts. An international *esprit de corps* has been broadened to a degree otherwise almost impossible. Joint action in emergencies such as epidemics has been simplified and made more quickly effective.

One cannot reflect upon the wide scope and results of the Health Organization's work without asking the question: If the League can do so much for the cause of world health through international coöperation, may we not hope that similar concerted efforts will some day cause the much desired world peace to appear on the horizon? Immediate success is not nearly so important as is the development of the will and the means to success. The health problem of the nations is by no means solved, but its solution can be greatly aided by the Health Organization of the League of Nations. On humanity's behalf the League is attempting to banish both disease and war forever from the earth.

REFERENCE

1. Heiser, Victor, M.D. *Millions of Patients. What the League Is Doing for the World's Health.* League of Nations Association, Mid-West Office, 75 East Wacker Drive, Chicago, Ill.

VALUE OF ANTI-ENTERIC VACCINES UNDER EMERGENCY CONDITIONS

THE apparently very spectacular success attending the practice of antityphoid vaccination in the military services naturally makes timely the consideration of its value under such conditions as obtain when serious local or national emergencies occur, such as the recent floods in the Ohio and Mississippi River valleys. Under the latter conditions we must not expect too much from antityphoid vaccination.

Without going into a full discussion of the experience with typhoid vaccine in civil communities it may be said that, in general, the results have not been so satisfactory as in military practice. Aside from the question of the intrinsic value of the vaccine, and the choice of particular strains for making the product, there are certain practical considerations that militate against high efficiency under emergency conditions; the chief of these is the difficulty in giving the required 3 doses of vaccine over a period of 2 weeks in time to derive from them any benefit that might be expected under more favorable conditions. In addition, there are no reliable data as to just how long after the course of injections is completed the tide of immunity will be high enough to protect the individual against doses of the infecting organism which may be expected to be rather larger than under average conditions. The flood conditions of early 1936 gave rise to little typhoid—too little to give any evidence of the value of the vaccine under the conditions that prevailed at that time. The relatively low incidence of typhoid in the flooded area in 1936 was almost certainly due to the prompt and efficient measures taken for the emergency purification of the suspected water supplies. These latter measures are of dependable value and obviously take precedence over immunological procedures in dealing with situations threatening from the typhoid fever point of view.

If the experience with water-borne amebic dysentery in Chicago in 1933 is of wide significance it may be expected the flood conditions will give rise to some cases of this disease. It seems clear that chlorination, probably the most widely used method of purifying polluted water, is not effective against cysts of *Endameba histolytica*—indeed, filtration and boiling appear to be the only methods which may be regarded as trustworthy.

NOMENCLATURE FOR THE COLON GROUP

WE wish to direct particular attention to the paper, Nomenclature for the Colon Group, published on another page of this issue. The short but lucid discussion presents the matter well and shows a sympathetic understanding of the difficulties of editors, but in spite of this, we doubt if the general reader appreciates the confusion which now exists in regard to this matter.

The Editor of this *Journal* was not the one who fell into the error of writing out *E. coli* as *Escherichia coli* when *Entameba coli* was intended. However, at the present moment there are on the Editor's desk two papers, one discussing the use of copper and chloramines in water purification, and the other the protection of the shellfish industry. Both refer to the intestinal group as an index of pollution. One speaks of *B. coli* and the other of *E. coli*, though both of them refer to the same test.

The action taken in the international congress in reserving the term bacillus for spore-forming organisms considers the use of *B. coli* distinctly wrong, yet as far as any authoritative statement goes, one term is as correct as the other. "B." should mean "Bacterium" and is usually so considered in dealing with this group. It has not been uncommon to find in journals two papers discussing practically the same matter, the first using one nomenclature, and the second the other.

Some 2 years ago the Editor entered into a fairly extensive correspondence in an attempt to formulate a style of nomenclature for this *Journal*. The result was a clear demonstration of the confusion which exists, and so far, no nomenclature has been adopted, nor has it seemed wise to do so until a greater unanimity of opinion among workers as well as taxonomists is reached.

The situation is irritating as well as confusing, and should not continue to exist. We believe that the Laboratory Section of this Association should take a stand at least for use in our society and *Journal*. It is to be hoped that the various bacteriological societies interested will unite in some recommendation. In the meantime, we will be glad to have the matter discussed in the columns of our *Journal*.

MEDICAL JOURNALISM

JOURNALISM is one of the oldest professions, and even medical journalism has a rather ancient origin—at least 2,500 years in the past.

The worship of Aesculapius had become associated with a form of medical practice some 500 years before Christ, and grateful patients sometimes erected tablets which recorded their treatment and its results, somewhat in the same way that such things are now told of in medical journals, so that we may say that medical journalism was then in existence. These tablets were placed in conspicuous places, and medical knowledge was disseminated through them.

At the time of Christ the Romans had their *Acta Diurna*—from which the word "journal" is derived—which gave some medical information, such as accounts of epidemics, for example. The term "newspaper" dates from the reign of Charles II of England. They were the product of news-letter writers, or "intelligencers"; were largely political; and contained no medical material. They became popular, and multiplied greatly, so much so that a list of the titles required

6 or 7 columns of Muddiman's *Handlist of Newspapers*. In 1642, they gave way to a crowd of "Diurnals," a term derived from the Roman *Acta Diurna*.

The *Foreign Medical Review* came into existence in 1779, and was the first strictly medical journal published in England, though there existed a number on the European Continent. A list compiled by Dr. Fielding Garrison, in 1934, required 40 double-columned quarto pages. Only 7 or 8 English publications are listed, among which are transactions of societies which are not medical journals.

The title indicates that even at this early date there was a feeling that medical matters were handled better abroad than at home, and the contents confirm this view.

There followed the *London Medical Journal* in 1781; *The Philosophical Magazine*, 1798; *Medical and Physical Journal*, 1799; *Annals of Philosophy*, or *Magazine of Chemistry*, etc., 1813 (with only a little medical matter); *London Medical, Surgical, and Pharmaceutical Repository*, 1814; *Medical Chirurgical Review*, 1820; and *Lancet*, 1823.

With the appearance of the *Lancet*, medical journalism changed its character and became tremendously virile. It was "new" in every sense in medical journalism, and gained immediate popularity. The great claim on the profession was that it stood up for the rights of the doctor in his professional position. It gave him medical information, and was the first journal to report hospital lectures. Bitter fights resulted over property rights, the *Lancet* going so far as to charge that many who were claiming the right to a monopoly in the teaching of medical students were not fitted by either skill or knowledge for the responsibility.

The story of the stormy career of Wakley has been frequently told and commented upon. He contested 10 suits for damages in the first 10 years of the existence of the *Lancet*. In all, only some $775 were awarded against him, while his costs were paid by public subscription. He did well by his medical public, and now medical teachers seek the columns of professional journals—and entirely too many the daily and Sunday issues of newspapers.

"When the promotion of medicine, and the standing and circumstances of practitioners, received the undivided attention of medical journals, the wide spread of knowledge followed in a reliable form, and with it sound professional intention. . . . in the records kept at the early Greek centres we had the basis for the production of systematic works; today the connection between the journal and the book becomes abundantly clear. The wealth of references to the contents of serial medical publications . . . shows that what happened 2,000 years ago is happening today; first we have the records and then the literature."

REFERENCE

1. Grains and Scruples—By a Chronicler. *Lancet*, Dec. 5, 12, and 19, 1936, pp. 1358, 1422, and 1485.

Watch for your copy

of

List of Members of the A.P.H.A.

Supplement to July Journal

PUBLIC HEALTH EDUCATION*

Health Education in Michigan—In "Michigan Program for Professional Education in the Health Sciences and for Public Health Education," by Dr. J. D. Bruce (*Michigan Public Health*, Lansing, Mich., April, 1937):

The Michigan program for professional education in the health sciences and for public health education may be summed up as follows: *First*, a reorganization of the various health science units within the university to make more effective our undergraduate professional teaching and to foster research in the allied health faculties; *second*, a program of postgraduate education in all health fields, designed to supplement undergraduate teaching and to keep the professions in touch with the advancing sciences; and, *third*, the dissemination of useful health knowledge, together with information concerning the various health agencies and how they may be most effectively utilized by the public. In this program it will be noted that no new agencies have been created; simply that those already operating have been brought into greater usefulness. To paraphrase Sir Arthur Salter: We have taken the system we know, suggesting how it might be strengthened where it is weak, repaired where it has crumbled, and rebuilt where new needs require attention to its fabric.

Who Will Take the Next Step?—Doubtless the thought of many readers is expressed by Dr. George M. Stevens, Epidemiologist, Department of Health, Los Angeles, who has written to several officers of the A.P.H.A.:

As one who is greatly interested in public health education, as affecting public health workers as well as the public, I have been watching with interest the efforts made in a few quarters to utilize the motion picture and the strip film for educational purposes.

Is it not time that the American Public Health Association, or the Public Health Education Section, accumulated a library of motion pictures and strip films that could be available to public health departments?

It is my thought that an editorial committee, working through various sub-committees, could prepare original films and slides, and pass on the acceptability of existing material for the instruction of health workers. And that the same committees would work on a separate series for the general public.

I would be pleased to know if a start has been made along these lines.

A New Sound Movie Trailer—The New York State Department of Health, Albany, reports that

The Department's first sound motion picture trailer suitable for reproduction in theaters had its initial public showing as a part of the regular program at the Strand Theater, Albany, on April 8. It has since been shown in 7 other theaters in Albany and 8 in Schenectady.

The new sound short, "The Story of My Life by Tee Bee," was originally a "silent" prepared by the National Tuberculosis Association. With the endorsement of the Association, it was converted into a sound film by Thomas C. Stowell, assistant director of the Division of Public Health Education, with the coöperation of members of the division staff.

The trailer undoubtedly will be used widely in connection with future Early Diagnosis Campaigns against tuberculosis, such as that being conducted this month throughout the state and nation. The successful experiment was tried both in Albany and Schenectady of adding a short informative campaign message from the local health departments, definitely tying in the general film with the local plans. It is expected that this idea will be followed in future anti-tuberculosis campaigns. The trailer copies are available for use in any city or community in the state. Prints will be made in 16mm. size for use where the larger 35mm. projection facilities are not available.

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York, N. Y.

Four Neighbors—A motion picture is reported by Paul Komora in *Mental Hygiene:*

We are indebted to the Judge Baker Guidance Center of Boston for an addition to the all too meager supply of sorely needed pictorial publicity materials on mental health—a motion picture showing how problem children are studied and treated at this center, one of the foremost of its kind in the country. It is a silent, 16mm., 50 minute film, entitled *Four Neighbors.* It tells the stories of four 12 year old schoolmates, each of a different nationality and from a different economic and cultural background, who present, respectively a conduct problem, a vocational problem, a personality problem, and a family problem. The boys are sent by the school principal to the Judge Baker Guidance Center which, after months of treatment, finds a helpful solution for each of the problems. . . .

It is a fine achievement, a vivid dramatization of a difficult theme, with the seriousness, pathos, humor, and other ingredients of an appealing human-interest story, which carries conviction and reflects great credit on the enterprise and ingenuity of the Judge Baker Guidance Center and the staff that produced it.

Write to the Center at 38½ Beacon St., Boston, Mass.

Understanding the Child—Paul Komora, in *Mental Hygiene,* tells us that

After the lapse of a year, during which publication was suspended for lack of funds, *Understanding the Child,* the quarterly magazine issued by the Massachusetts Society for Mental Hygiene from 1931 to 1935, resumes its appearance as a regular publication of The National Committee for Mental Hygiene. This unique periodical, devoted to the mental health of children, has been a highly valued contribution to the instruction of teachers in the principles and practices of mental hygiene as applied to the classroom, and has had a wide circulation among the schools of Massachusetts. In recent years educators outside the state have begun to appreciate its excellence as a medium serving their special needs, with the result that there has been an increasing demand for the publication in other sections of the country. In one instance, for example, subscriptions were ordered in bulk for all the teachers of the school system in a large city. The National Committee now takes over the magazine in an attempt to make it available to elementary and high school teachers the country over, and to implement the gradually developing program in the field of education, in which the Massachusetts Society has done such important pioneer work.

Write to 50 W. 50th St., New York, N. Y.

Health Education in April, 1937, Journal—Here are selected references of interest to those doing health education. See references in April, 1937, issue of *American Journal of Public Health.*

Note "Can You Explain," on page XVII.

In "Relation to Bovine Mastitis to Human Disease" (page 340):

Educational programs relative to proper stable hygiene, the milking procedure, and avoiding the undue urging of dairy cattle to produce, will reduce these infections. An efficient veterinarian, with the aid of the laboratory, can be of great assistance in eliminating and controlling this vast economic and public health program.

"Health Museum" (page 345) reports new museum in Cleveland.

"Public Health and Physical Education" (page 350) suggests that:

Public health does and should publicize the major problems which endanger the health of our citizens. Perhaps the profession might well indicate specifically how the school, including physical education, may help in the early and effective solution of these problems.

Education in public health provided by experienced workers in this field should be made readily available to physical educators.

"The King's English" (page 362) officers a little lesson in good writing.

"An International System of Indices" (page 365) mentions health instruction as one of 44 subjects in a system of health indices.

"Muddled Information on Health"

(page 383) describes a "masterpiece of misinformation" in the form of an article on cancer appearing in *Coronet*. Material for letters and resolutions, and copy in health periodicals of all types.

In "Books and Reports" (pages 404–409) is the annual review of outstanding books in selected classifications.

New members of Public Health Education Section are listed on page 426.

A new quarterly, *American Journal of Safety* is announced on page 428.

For "Conferences and Dates" see page 432.

"The Educational Qualifications of the School Physician," in a Supplement (page 3) suggests postgraduate work which includes principles of health education.

Hygeia, May, 1937—Chief articles in *Hygeia*, 535 N. Dearborn St., Chicago, Ill. (copy free to health workers):

Syphilis . . . Your Skin and the summer sun . . . Pyorrhea quackery . . . The crippled child (rehabilitation) . . . Expert mother—greatest of career women (a pediatrician passes judgment) . . . Books for hospital libraries (common sense needed) . . . A trailer did the trick (for one man's health) . . . Cattle's contribution to mankind . . And so you're reducing! . . . The doctor in England . . . New hospitals for old (via PWA) . . . Hints for the home nurse . . . Jules Bordet (Belgium) . . . Nature's G-Men: birds . . . Live with heart disease and like it! . . . Questions and answers . . . New books on health.

In "School and Health":

The conflicts of adolescence . . . The school health examination may be an adventure in learning . . . Safety in water sports . . . Case studies of overweight children . . .

We Have Heard—That Newark, N. J., Health Department has issued a baby protection poster. Possibly it should be reproduced on this page to answer the inquiries about posters.

Probably other cities, or states, have issued posters. We would like samples for the *Journal*, and for display at A.P.H.A. convention in October.

What Does the Public Think?—*Fortune*, *Literary Digest*, American Institute of Public Opinion, many newspapers, and other agencies have cultivated a widespread interest in the possibility of counting the number of people who think or believe one way or another, or say that they do.

The possibility of attaining statistical accuracy is considered in "Practical Methods for Identifying Public Opinion," by Harwood L. Childs, in a mimeographed pamphlet, with a selected bibliography. Social Work Publicity Council, 130 E. 22d St., New York, N. Y. *25 cents.*

Dr. Childs describes current methods of probing public opinion, and emphasizes the statistical pit-falls into which amateur investigators are likely to stumble.

WANTED

Thus writes George A. Dunden, Director of Health Publications, Health Department, Milwaukee, Wis.

In coöperation with the Milwaukee Safety Commission the Milwaukee Health Department has available about 100 public bulletin sites for health posters 17" by 23" in size. Could you tell us where we may obtain such health posters for adults in quantity?

Several of the national health agencies may have a single poster but even that one may not be of the size needed. Milk and safety, and such efforts as Early Diagnosis Campaign offer about the only hope. Possibly readers will supply additional information.

From Dr. E. O. Chimene, Director of Public Health, Austin, Tex.:

In compiling a series of radio talks I would like to utilize as far as possible days, weeks,

or events of national importance that may have a health significance. Do you happen to have a calendar of such events or perhaps a list which gives the events but not necessarily the exact dates for any given year? You may be sure I shall greatly appreciate any help you may be able to give me.

What do readers suggest in addition to *News Almanac for Social Work* and *Almanac Notebook?* We hope that Dr. Chimene will report on the working out of his interesting idea.

From Broach Sanitary Assn., Sanitary Museum Hall, Broach, India:

I have the honour to request you to kindly send me posters, plays, booklets, pamphlets, etc., for the use of our health association free of charge. I am sending herewith a copy of our last annual report. Please also send us the price list of publications etc., of your Association.

IN ORGANS AND JOURNALS

"An Experiment in Health," by J. Allan. *Health*, 105 Bond St., Toronto, Ontario. March, 1937. *15 cents.* The Pioneer Health Centre, a health-recreational center in London; 25 cents a week (plus 10 cents a week for any children over 16 years) entitles the whole family to general privileges which include an annual medical examination with advice, but not treatment.

For effective examples of the conversational presentation of health facts look up the "Mark Time" series by C. K. Blanchard, in *Public Health News*, New Jersey Dept. of Health, Trenton. Ben Hustler and Mark Time tackle a wide range of health topics as the months go by.

"Good Nursing Publicity Through a Public Pageant." *Trained Nurse and Hospital Review*, 468 4th Ave., New York, N. Y. Nov., 1936. *20 cents.* Description with illustrations.

"Health Bills in Brief" is a heading in *Health Progress*, issued by New Jersey Health & Sanitary Assn., Freehold, N. J. We don't seem to find many health house organs giving attention to current legislation.

In *Hospitals*, American Hospital Assn., 18 E. Division St., Chicago, Ill. (Nov., 1936):

How we celebrate hospital day (Owosso, Mich.) . . . An essential program for hospital service plans (includes education in and out of the hospital) . . . Public relations from the viewpoint of the hospital trustee.

"Parent Education" is the general subject of a score of articles in the Oct.–Dec., 1937, issue of *Commonhealth*, Massachusetts Dept. of Public Health, Boston, Mass.

"Public Health and Social Work" has been added to the sections of book and periodical abstracts in *Journal of Home Economics*, Mills Bldg., Washington, D. C. A sample copy *free.*

"The Relationship of the Michigan Department of Health to the Practicing Physician," by Dr. C. C. Slemons. *Michigan Public Health*, Lansing. March, 1937. Reprinted from a medical journal. Describes in detail bureaus and services of the State Department of Health. "Believe it, or not" one may be confident that the state and local departments are not well understood by many physicians.

A score of periodicals "dealing with school health problems" are listed in *Bulletin*, Michigan School Health Assn., Lansing. March, 1937.

"Some Milk Superstitions," by J. H. Frandsen. *Journal of Home Economics*, Mills Bldg., Washington, D. C. April, 1937. *30 cents.* For use when talking or writing about health superstitions, an effective angle for many audiences.

Syphilis is the sole topic of the Jan.–March, 1936, issue of *Iowa Public Health Bulletin*, Des Moines.

Trailer health problems are getting into state health bulletins (Wisconsin, Michigan, New York, etc.).

Wolverine Health Bulletin is pub-

lished by the Michigan Tuberculosis Assn., 535 S. Capitol Ave., Lansing, Mich. Includes hidden name, added letters, true or false, etc., puzzles and tests. The accompanying wall calendar on one side includes illustrated health history: "Footprints on the Sands of Time."

DATES AHEAD

Camping, commencement, weddings, church Children's Day, Father's Day (June 20), summer weather and summer food, the end of school, July 4th, are some of the dates and topics ahead for more or less of a health angle.

The Summer Round-Up of the Children is well under way. Local units may register now, but they are too late for certificate awards. Apply to the state chairman of the summer round-up of the National Congress of Parents and Teachers.

MAGAZINE ARTICLES

"And the Truth Shall Make You Free," by Maxine Davis. Across the upper half of a 2 page spread appear "Infantile Paralysis," "Syphilis," "Smallpox," etc. A splendid piece of popular writing on syphilis and gonorrhea, with frequent mention of the two diseases. Realistic but unemotional. *Pictorial Review*, 316 West 57th St., New York, N. Y. May, 1937. *10 cents.*

"Cuba, Health-Insurance Test Tube"; "Spring Fever: Sulfur and Molasses to Cure Young Man's Fancy Gives Way to Clinical Study." *Literary Digest*, 354 4th Ave., New York, N. Y. May 1, 1937. *10 cents.*

"Fifty Years a Surgeon," by Robert T. Morris. Book condensed in *Book Digest*, 350 E. 22d St., Chicago, Ill. May, 1937. *25 cents.* Author usually "has been in vanguard . . . against those inclined to defend . . . the status quo."

"Human Blood for Sale." Two pages of pictures on professional blood donors, etc. *Look*, Des Moines, Iowa. May 11, 1937. *10 cents.*

"Medical Censorship in California," by Lillian Symes. What happened to the report of the "Medical-Economic Survey." *Nation*, 20 Vesey St., New York, N. Y. March 27, 1937. *15 cents.*

"No Place Like the Home for Accidents." (Pointers gleaned from a recent safety conference); "Eyes Have It" (factors in rapid reading); "Breath of Life" (technic for saving babies from asphyxia). *Literary Digest*, April 24, 1937. *10 cents.*

BOOKS AND REPORTS

American Medicine: Expert Testimony Out of Court—*By leading doctors and surgeons including men from every state. New York: The American Foundation,* 1937. 2 Vols. 1,500 pp. Price, $3.50.

The problem of providing "adequate" medical care to the people cannot be expressed as an American average. The problem varies from state to state and from one community to another within the same state. The attempts that have been made to solve it appear here relatively successful, there manifestly insufficient. As Dr. Hugh Cabot has most truly written, even physicians have had considerable difficulty in seeing the whole field. The American Foundation with the collaboration of 2,000 leaders of the profession (including Dr. Cabot) has now made it possible for each of us to see the whole field, to see it without bias, to look on it without emotion and faithfully to readjust our judgment in accordance with what we may see.

Do not imagine that these volumes are builded of the sublime speculations of some statistician upon the rigid and orthodox foundation of a questionnaire. The structure is far more original, the design more exacting, and the credit due to the architects proportionately great. The 2,000 authors were invited to offer their experience and suggestions in the widest possible terms. The editors were quick to seize upon every significant piece of evidence, every original idea, and by a tireless system of follow-up, extracted from each contributor his more reluctant wisdom. The material so obtained is classified under 11 chapter headings as follows:

1. Is adequate medical care now generally available?
2. Views on general principles and considerations that should underlie the organization of medical care
3. Medical education
4. Specialization
5. Group practice
6. The place of the hospital
7. Public health organization
8. Experimentation—state, county and community plans
9. State medicine
10. Health insurance, compulsory, voluntary, hospital, industrial
11. Limited state medicine and private practice

The subjects have not been completely covered even by the 5,000 letters received. Lest the reader should be tempted to suspect that omissions are due to an editorial blind spot, the editors themselves from time to time, point to the incompleteness of their report. Thus in a long chapter on specialization no letter can be quoted on the need for specialization in public health! The fact that hundreds of our colleagues are deeply concerned with making surgery a specialty and scarcely any of them are worrying about the training of health officers, is itself a fact of major social importance. It makes comprehensible, even tolerable, a good many of the opinions expressed in chapter 7.

On the other hand, the need for a reorientation of general practice, to bring it into a more fruitful relation with the science of preventive medicine, is widely recognized. It may be that this is the first necessary step toward the recognition of a place for specialists who hold degrees from graduate schools of the universities.

If we are to get the benefit from this provoking study it is not just the

"sensible" opinions that we must understand. We shall get most benefit by absorbing those opinions that are to us perverse and conservative which nevertheless are held sincerely by men of leadership and culture and which constitute an important element in the total situation to which any program of public health will have to adapt itself.

J. ROSSLYN EARP

Into This Universe—The Story of Human Birth—*By Alan Frank Guttmacher, M.D. New York: The Viking Press,* 1937. 366 pp. Price, $2.75.

A number of books have appeared within the last decade dealing with obstetric and prenatal care. None of those coming to my attention has covered the whole field so clearly and precisely as this unique volume.

Dr. Guttmacher frankly approaches his subject from the historical viewpoint, and the historical perspective is preserved from beginning to end. The author modestly states in the Preface that he has "attempted to set forth, in the cramped confines of a single volume, something of the folklore, the history and the scientific facts of birth."

He has done much more than that. He has clothed the complex subject of sex and its normal outcome in procreation in fascinating descriptions thoroughly scientific, absorbingly interesting, and instructive.

The book should be read by every mother and father—actual or prospective. It is well documented as to original sources and has a comprehensive index.

RICHARD A. BOLT

Wills Hospital Eye Manual for Nurses—*By Gladys Elaine Cole, R.N. Philadelphia: Saunders,* 1936. 202 pp., ill. Price, $1.75.

This *Manual,* written specifically for the nurse, is presented in a simple, practical, concise manner. Miss Cole gives the anatomy and physiology of the eye, and instructions for examination, treatment, medication, and preparation for operation. After discussing in some detail the diseases of the eye, she instructs the nurse as to symptoms, diagnosis, tests, and medical and surgical treatment, always emphasizing the necessary nursing care. The many illustrations and complete table of contents help to make this a most useful handbook.

Although this book would be of special value to the clinical nurse, it would seem that the public health nurse might find it quite useful to have in her library as a source of reference.

LUCY GORDON WHITE

Weight - Lifting by Industrial Workers—*Foreword by E. P. Cathcart. Home Office Safety Pamphlet No. 16, H. M. Stationery Office, London,* 1937. 44 pp. Price, $.45.

This pamphlet (procurable through the British Library of Information, 270 Madison Avenue, New York) discusses the relation of weight-lifting to accidents, better weight-lifting, special consideration of certain industries, and the influence of other factors such as food, temperature, and ventilation. A brief bibliography is attached, also an Appendix covering statutory limitations of loads in Great Britain and a considerable number of half-tones and schematic drawings. Previously, Cathcart and others had taken up the question of the "optimum load" with relation to the physique of women in industry (which is reviewed). Workers should be considered individually in the matter of weight-lifting while various groups of workers may have different reactions. Boys in particular must be guarded, due to their anxiety to prove their strength. Sound methods of lifting and carrying are described. The principles are gen-

erally applicable to both sexes. The natural rhythm of the body and its relation to rest pauses is also important. Not only the weight of the single load should be considered, but the quantity per diem as well as vertical lifting and from what level. The pamphlet is terse in statement and should be read in its entirety by all those interested.

EMERY R. HAYHURST

Child Care and Training — *By Marion L. Faegre and John E. Anderson* (4th ed.). *Minneapolis: University of Minnesota Press*, 1937. 325 pp. Price, $2.50.

This very helpful book has been revised thoroughly and brought right up to date. It reveals that the authors have kept in intimate touch with modern developments in child care and training.

The chapter on "Social Development" is one of the best we have seen. It is a timely presentation of the various adjustments children need to make in their social behavior.

The chapters on habits form an essential part of this volume and offer reasonable suggestions in the solution of perplexing problems. It is hopeful in this period of educational uncertainty that the authors believe in "constructive discipline" and express their faith in practical ways for parents to apply our knowledge of child psychology. The suggestions set forth on page 190 may be taken as our modern code for child guidance.

In their treatment of the subject the authors have preserved a judicious balance between the physical, mental, emotional, and social factors. Each chapter concludes with a selected reference list of books and pamphlets. The University of Minnesota Press is to be commended for the attractive and convenient arrangement of each part of the book. RICHARD A. BOLT

Die aktive Schutzimpfung gegen Diphtherie und die Ergebnisse der in den Jahren 1934 und 1935 in Deutschland durchgeführten Diphtherieschutzimpfungen — *By Max Gundel. In Veröffentlichungen aus dem Gebiete des Volksgesundheitsdienstes, Heft 416, Berlin, R. Schoetz*, 216 pp., 22 figs. in text. 1936. Price M. 9.80.

Of 353,722 children in the areas under consideration, 315,544, or 89.2 per cent, were inoculated in about 10 months during a flare of diphtheria in Germany. A sharp decline in both morbidity and mortality from diphtheria, especially after the building up of the protective action, followed in all of the regions in which inoculations were made, regardless of season. In a few instances there was a decline without inoculation. The decline was greater, more rapid, and to a lower minimum in some areas than in others, especially in those in which the epidemic had continued for a year or more. The decline in mortality was even greater than that in morbidity. The numbers are so large that the probability of error is relatively small.

A comparison of morbidity during 10 months prior to inoculation with that during 10 months after the active protective inoculation was in effect showed a reduction of cases of illness due to diphtheria from 9,979 to 3,623, or to about one-third. Deaths fell off from 517 to 125 or nearly to one-fourth. The reductions were greater in fact because cases of disease or deaths of persons outside of the age limits of inoculation were included in the totals. The mortality of the sick fell off from 5.18 to 3.45 per cent, or 1.73 ± 0.38 per cent. The intensity of the antidiphtheria campaign and better medical care during the campaign, together with the detection of light cases tended to reduce the contrast between the two periods.

Two and 3 inoculations were more effective than 1. Morbidity in 2,968 persons with 1 toxin-antitoxin-flocules inoculation was 1.2 per cent, in 14,730 persons with 2, 0.8 per cent, and in 87,012 persons with 3, 0.4 per cent. With toxin-antitoxin in 2,139, 2,360, and 20,830 persons it was 1.7, 0.6, and 0.7 per cent, respectively With formol-toxoid, these percentages were 1.4, 1.6, and 1.0, in 16,122, 26,193, and 59,643 persons, respectively.

Morbidity in non-inoculated and inoculated children 1 to 6 years of age was 2.4 and 1.2 per cent, respectively, while in children from 6 to 14 years of age it was 3.4 and 0.6 per cent, respectively. Non-inoculated school children are thus more susceptible than non-inoculated younger children and inoculated younger more than inoculated older children.

Deaths among 38,178 non-inoculated children were 98, or 0.26 per cent, but in 313,544 children inoculated 1 to 3 times there were 59 deaths, or only 0.018 per cent, while in the group of 231,662 children with 3 inoculations there were only 23 deaths, or 0.009 per cent. The author concludes that active immunization is the most valuable weapon in endemic and epidemic diphtheria for the protection of children from disease and death.

CHARLES A. KOFOID

The Last Thirty Years in Public Health: Recollections and Reflections on My Official and Post-Official Life—*By Sir Arthur Newsholme, K.C.B., M.D., F.R.C.P. London: George Allen & Unwin, Ltd.*, 1936. 410 pp. Price, 15 s. net.

This is the second volume of Sir Arthur's memoirs. Its appearance will be welcomed in America, as was the preceding volume (*Fifty Years in Public Health*), if for no other reason than because nearly half is devoted to his experiences on this side of the Atlantic and his recollections of American public health and social work. There is, however, a more compelling reason why this second installment of Sir Arthur's memoirs will command American attention: it deals, in large measure, with a number of subjects which were frontiers of British public health progress in the generation past and which are now become (or becoming) central points in our own interests.

Some of our social issues of today were Britain's 20 years ago. Whoever doubts this in public health, need but inspect even casually the topics in the chapter-heads of Part One (Official Life in Whitehall).

The value of these memoirs may be illustrated by a single point. Under the courageous and skillful leadership of Dr. Parran, 1936 was made notable in American public health by the destruction of that obscurantism which has impeded efforts to deal with syphilis as a communicable (instead of a "social") disease. We are now beginning to wrestle with the problems involved in the organization of treatment facilities. In Britain, under Sir Arthur's leadership, a substantial and effective basis was laid, as long ago as 1913–1917, for the gratuitous and confidential treatment of all applicants and this was effected by the central and local governments with the coöperation of the British Medical Association. It is almost needless to add that the analysis of the problem, the arguments —*pro* and *con*—on the choice of procedures, etc., reviewed here by Sir Arthur, should be pondered by American leaders.

Part Two, American recollections, runs the gamut from The Red Cross in Peace Time, through Health Problems in Tropical Medicine. Sir Arthur knows American public health from critical reading of its history, from

visits to many parts of the land, and from his years on the faculty of the School of Hygiene and Public Health at Johns Hopkins. Welch, Garrison, Sedgwick, Biggs, Chapin, Howell, and many others, march across the pages. Trenchant observation, mature judgment, and a not-too-dry humor color everything.

Part Three (The Increasing Socialization of Medicine) reviews critically Sir Arthur's European studies, analyzes the work of the (American) Committee on the Costs of Medical Care, presents a (less than full length) portrait of two (the "British" and "American") National Medical Associations: A Contrast, and reviews Soviet and other national medical services.

Sir Arthur writes casually and never ponderously. The book is packed with observations on the history, evolution, and administrative solution of public health problems.

Though making no pretense to identify the American with the British scene, much that happened in British public health explains what happened in the United States. There is a common thread between their institutions and ours. These reminiscences explain many of our practices, while helping us to solve those problems in which Britain has anticipated us. Readers of this volume will hope for a subsequent one from the same pen.

I. S. FALK

BOOKS RECEIVED

MUNICIPAL AND RURAL SANITATION. By Victor M. Ehlers and Ernest W. Steel. 2d ed. New York: McGraw-Hill, 1937. 477 pp. Price, $4.00.

HOW TO INTERPRET SOCIAL WORK. A Study Course. By Helen Cody Baker and Mary Swain Routzahn. New York: Russell Sage, 1937. 79 pp. Price, $1.00.

LIFE AND DEATH. The Autobiography of a Surgeon. By Andrea Majocchi. New York: Knight, 1937. 300 pp. Price, $2.75.

PHYSIOLOGICAL HYGIENE. By Cleveland Pendleton Hickman. New York: Prentice-Hall, 1937. 493 pp., ill. Price, $3.25.

HANDBOOK OF MICROSCOPICAL TECHNIQUE. Edited by C. E. McClung. 2d ed. New York: Hoeber, 1937. 698 pp. Price, $8.00.

THE HEALTH EDUCATION YEAR BOOK, 1937–1938. By the Central Council for Health Education, London, 1937. 139 pp. Price, $1.50.

A TEXTBOOK OF GYMNASTICS. By K. A. Knudsen. Philadelphia: Blakiston, 1937. 364 pp., ill. Price, $3.00.

BUTTER AND OLEOMARGARINE: An Analysis of Competing Commodities. By W. R. Pabst, Jr. New York: Columbia University Press, 1937. 112 pp. Price, $1.50.

PUBLIC HEALTH: WAYS AND MEANS OF PREVENTION OF INFECTIOUS DISEASES (in Hebrew). By Dr. Abraham J. Levy. Tel Avid, Palestine: "Achiever," 1935. 318 pp., 66 ill. Price, $1.50.

SANITATION: A MANUAL FOR THE CARE OF FOOD AND DRINK AND FOR INSTITUTING HEALTHY SANITARY CONDITIONS WITHIN AND WITHOUT THE HOME (in Hebrew). By Dr. Abraham J. Levy. Tel Aviv, Palestine: "Achiever," 1936. 319 pp., 75 ill. Price, $1.50.

FIRST AID: A MANUAL FOR EVERY INDIVIDUAL (in Hebrew). By Dr. Abraham J. Levy. Jerusalem, Palestine: Reuben Mass, 1936. 377 pp., 114 ill. Price, $1.50.

A WORKBOOK IN HEALTH FOR HIGH SCHOOL GIRLS. By Gladys B. Gogle. New York: Barnes, 1937. 267 pp. Price, $1.00.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Declining Birth Rates—How our declining birth rate will affect agriculture and American economics is gloomily portrayed. As the preponderance of urban population turns to a preponderance of rural population, demand for agricultural products will decrease and farms will degenerate from a commercial to the subsistence level. The solution lies in inculcating a national spirit of sacrifice, the author holds.

BAKER, O. E. Significance of Population Trends to American Agriculture. Milbank Quart. 15, 2:121 (Apr.), 1937.

Who Is Immunized?—Surveying the health of 8,700 white families, a record was kept of the immunizations that the 40,000 persons had received. Large cities had twice as many smallpox vaccinations as rural regions, whereas rural groups were vaccinated for typhoid twice as frequently as city people. Before 5 years, diphtheria immunization exceeded smallpox, but after 5 years, smallpox vaccination was greater.

COLLINS, S. D. Frequency of Immunizing and Related Procedures in Nine Thousand Surveyed Families in Eighteen States. Milbank Quart. 15, 2:150 (Apr.), 1937.

Is Cancer Increasing?—Though cancer is second in causes of death, it displaces the 5 diseases that formerly preceded it because they have declined in incidence. Half the reported cancers are of the digestive tract; a third are of the female breast and genital organs. Increases in rates are largely limited to males over 45. Probably the apparent increase that is not attributable to the aging population is due to improvement in diagnosis and reporting. An excellent and reassuring summary.

DUBLIN, L. I. Statistics of Morbidity and Mortality from Cancer in the United States. Am. J. Cancer. 29, 4:736 (Apr.), 1937.

Smallpox Vaccination Studies—Experience in Spain confirms American studies of the value of subcutaneous smallpox vaccination using virus cultivated *in vitro* or on chick embryo.

GALLARDO, E., and SANZ, J. Subcutaneous Smallpox Vaccination With Bacteria Free Vaccine. Am. J. Hyg. 25, 2:354 (Mar.), 1937.

School Health Services—In Detroit teachers in public and parochial schools are taught to make health inspections of their charges. Children found with defects are referred to school physicians who take up the matter of correction with parents. The results have been successful.

GUDAKUNST, D. W. School Health Inspection by Teachers. Milbank Quart. 15, 2:139 (Apr.), 1937.

Incidence of Trichinosis—As this sampling indicates a 15 per cent incidence of trichinosis among the residents of Washington, it is recommended that an examination of a press preparation of 1 gram of diaphragm muscle be made a routine procedure in all postmortem examinations.

HALL, M. C., and COLLINS, B. J. Studies on Trichinosis. Pub. Health Rep. 52, 17:512 (Apr. 23), 1937.

For Sanatorium Graduates—One whole issue of this vocational guidance magazine is given over to the many

aspects of the tremendously important subject of the rehabilitation for the ex-tuberculosis patient. Every health worker should possess some information on this matter and this is one good place to get it.

LEE, E. A., *et al.* The Social and Vocational Rehabilitation of the Tuberculous. Occupations. 15, 7:581 (Apr.), 1937.

For Expectant Mothers in Rural Sections—Details about the operation of a small town maternity nursing center in a Western state will stimulate interest in the possibilities in this procedure in all sections of the country.

MOORE, A. R. A State Maternity Demonstration Center. Pub. Health Nurs. 29,4:219 (Apr.), 1937.

For Ontario School Children—How the school health educational program was changed from one of "lectures" by the school medical service staff to an educational system carried on by the ones who should do the teaching, the teachers, is interestingly told in historical detail.

PHAIR, J. T., *et al.* An Experiment in Health Teaching in Ontario. Canad. Pub. Health J. 28, 4:166 (Apr.), 1937.

Vaccination Against Yellow Fever—For the protection of laboratory workers, a yellow fever vaccine following immune human serum has been found effective and the immunity persists up to 4 years.

SAWYER, W. A. Experience in Vaccinating Against Yellow Fever with Immune Human Serum and Virus Fixed for Mice. Am. J. Hyg. 25, 2:221 (Mar.), 1937.

Telling Youngsters About Tuberculosis—Many sanitarians will be interested in the national program for teaching high school students about tuberculosis and its prevention and the relationship of the educational project to the school case finding program.

SHAW, F. B., and STRACHAN, L. Preventing Tuberculosis in High Schools. J. Health & Phys. Education. 8, 3:136 (Mar.), 1937.

Voluntary and Official Nursing Services—Relative spheres of activity for the health department nursing staffs and those of the nursing associations in meeting the mounting needs for nursing care is the subject of this stimulating discussion of one city's problems.

WINSLOW, A. R. The Private Agency in Today's Health Problem. Pub. Health Nurs. 29, 4:204 (Apr.), 1937.

ASSOCIATION NEWS

Sixty-sixth Annual Meeting
American Public Health Association

New York, N. Y.
October 5–8, 1937

Headquarters

THE Hotels Pennsylvania, New Yorker, and McAlpin have been named by the Program Committee as meeting and residence headquarters. Next month the room rates of these and a number of other selected hotels will be published with a reservation blank. Delegates are urged to reserve rooms as soon as possible, since an expected attendance of 4,000 will tax the facilities of the headquarters group.

Health Education Institute

THE Public Health Education Section has just issued an announcement of the Fifth Institute on Health Education to be held in connection with the Association's 66th Annual Meeting. The Institute will be held on Sunday, October 3, Monday, October 4, and Tuesday, October 5. Special courses are offered on personal contact, newspapers, meetings, campaign methods, printed matter, radio, visual methods and school.

The faculty will include:

Professor Ira V. Hiscock, *Director*
Mary P. Connolly
Mary Swain Routzahn
Philip R. Jacobs, Ph.D.
H. E. Kleinschmidt, M.D.
Bertrand Brown
Mrs. W. W. Bauer
Ruth Grout
C. E. Turner, Ph.D.
Homer N. Calver
Evart G. Routzahn

The registration fee is $3.00 for members and $5.00 for non-members. A prospectus will be sent on request.

Scientific Exhibits

THE Committee on Scientific Exhibits will welcome applications for space for:

1. Visual Presentation of:
   (a) Results of statistical, laboratory, or other research
   (b) Administration organization or methods
   (c) Community or individual health conditions, needs or services
   (d) Statistical, laboratory or other data, etc.
2. Devices or technics used in health administration, sanitary control, vital statistics, laboratory work, or other phase of the operation of a health department or voluntary agency
3. Professional teaching material: for the health agency staff, or the professional school
4. Material of historical or biographical interest

Such exhibit space is provided by the Association without charge. Application must be made on the form prescribed by the committee which may be obtained from this office.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Guillermo Arbona, M.D., Maricao, P. R., Public Health Officer, Dept. of Health, P. R.

Forrest J. Austin, M.D., Rice Bldg., Houghton, Mich., Director, Houghton-Keweenow District Health Department

Richard S. Austin, M.D., Cincinnati General Hospital, Cincinnati, O., Member, Board of Health

Lewis S. Barger, M.D., Box 5, Golconda, Ill., District Health Superintendent

James M. Barnett, M.D., Albany, Ga., Member, Dougherty County Board of Health

J. Jeff Billington, M.D., 521 N. Boulder, Tulsa, Okla., City Superintendent of Health

Henry H. Bishop, M.D., Burkesville, Ky., Health Officer, Cumberland County

Edwin Cameron, M.D., New Martinsville, W. Va., Health Officer, Wetzel County

Andrew J. Cauthen, M.D., W. Dunlap St., Lancester, S. C., County Health Officer

Archie I. Cullen, M.D., Altamont, N. Y., Health Officer

Lee H. Curran, M.D., P. O. Box 572, Omak, Wash., Medical Officer, U. S. Indian Service

Arellin Dalcourt, M.D., St. Laurent, Louiseville, P. Q., Canada, Medical Officer, Maskinonge County

Walter W. Debele, 239 Somerset St., North Plainfield, N. J., Health Officer

Nettie M. Dorris, M.D., 214 S. Central Ave., Paris, Ill., District Health Superintendent

Lewis N. Eames, M.D., 223 N. Washington St., Rome, N. Y., Health Officer

Walter J. Farrell, M.D., Phar.D., 301 Main St., Johnson City, N. Y., Health Officer

O. David Garvin, M.D., Ridge Spring, S. C., District Health Director

Lloyd H. Gaston, M.D., Sandusky, Mich., Director, Sanilac County Health Dept.

C. R. Markwood, M.D., Whitley City, Ky., McCreary County Health Officer

L. Walter Naus, M.D., 112 W. Johnson St., Upper Sandusky, O., County Health Commissioner

K. W. Navin, M.D., Philip, S. D., Director, First District Public Health Unit

James H. Pearce, M.D., Georgetown, S. C., County Health Officer

Daniel Rakov, M.D., Walden Rd., Maybrook, N. Y., Health Officer

David Rodier, M.D., Hunter, N. Y., Health Officer

S. C. Rutland, M.D., P. O. Box 25, LaGrange, Ga., Troup County Health Officer

Harry A. Sauberli, M.D., Sevierville, Tenn., Director, Sevier County Health Dept.

Harold D. Sehl, M.D., South St., Clark Mills, N. Y., Health Officer

Richard C. Shepard, M.D., LaFayette, Ga., County Commissioner of Health

Clarence E. Sherwood, M.D., 107½ Egan Ave. S., Madison, S. D., City Health Officer

Eugene H. Silverstone, M.D., 615 N. Wolfe St., Baltimore, Md., Student at present; on leave from U. S. Indian Service

Adam Stacy, Jr., M.D., 210 Riverway, Boston, Mass., Student at present; Bell County Health Officer, Pineville, Ky.

Charles N. Stanhope, M.D., Municipal Bldg., Dover-Foxcroft, Me., District Health Officer

A. L. Stone, M.D., City Hall, Camden, N. J., Director of Public Health

John Weiss, M.D., 22 Market St., Ellenville, N. Y., Health Officer

Herbert B. Wise, M.D., City Hall, Charleston, W. Va., City Health Commissioner

Laboratory Section

Hyman M. Charm, Sc.D., 1018 E. 163 St., New York, N. Y., Director of Clinical Laboratory

Almond D. Davison, 14th Ave. & Lake St., San Francisco, Calif., Technician, U. S. Public Health Service Laboratory

Samuel S. Epstein, Ph.D., 33 Keap St., Brooklyn, N. Y., Director, Research Dept. of Bacteriology, Camel Lead, Color and Chemical Products Mfg. Corp.

Thomas S. Gilchrist, 72 Melrose Ave., Toronto, Ont., Canada, Production Manager, Acme Farmers Dairy Ltd.

Helen V. Karr, 525 E. 68 St., New York, N. Y., Research Bacteriologist, New York Hospital

Edward T. Mallett, 8th & Walnut Sts., Evansville, Ind., Dairy Bacteriologist, Ideal Pure Milk Co.

Harold W. Morgan, M.D., 84 Beaumont Dr., Mason City, Ia., Director, Laboratories and X-ray, St. Joseph's Mercy Hospital

Louis Nerb, Ph.D., 121 DeKalb Ave., Brooklyn, N. Y., Bacteriologist, Brooklyn Hospital

Mary P. Salisbury, 1108 Bath Ave., Ashland,

Ky., Laboratory Technician, Boyd County Health Dept.

Zelma Zentmyre, 118 E. Market St., Iowa City, Ia., Associate Bacteriologist, State Hygienic Laboratories

Vital Statistics Section

Gladys G. Casady, State Dept. of Health, St. Paul, Minn., Field Agent and Mortality Editor, Division of Vital Statistics

Marcella B. Graham, City Hall, Oakland, Calif., Deputy Registrar of Vital Statistics, Dept. of Health

David E. Hailman, 6072 Harrell Ave., Detroit, Mich., Supervisor, Medical Coding, U. S. Public Health Service—Health Survey

Public Health Engineering Section

William L. Avrett, Jr., 920 Highland Terrace, N.E., Atlanta, Ga., Assistant Engineer, State Board of Health

John B. Black, C.E., Dublin, Ga., Assistant Division Engineer, State Board of Health

Nathan M. de Jarnette, 1114 Alta Ave., N.E., Atlanta, Ga., Assistant Sanitary Engineer, State Board of Health

Charles E. Duncan, Box 142, Sparta, Ga., District Sanitary Engineer, State Dept. of Health

Charles A. Farish, State Board of Health, Columbia, S. C., Sanitary Inspector

David C. Fowler, 135 State Capitol, Atlanta, Ga., Division Sanitarian, State Board of Health

Robert J. Gleason, 224 E. 47 St., New York, N. Y., Project Supervisor, Federal Plumbing Inspection

Carlos A. Guardia, Apartado Postal 1175, Caracas, Venezuela, S. A., Sanitary Engineer, Ministry of Public Health

John L. Hummel, 814 N. Monroe St., Albany, Ga., Director, Malaria Control and Sanitary Engineering, Dougherty County Board of Health

William R. Jones, 300 S. Broadway, Wichita, Kans., Sanitarian, State Board of Health

Lester M. Klashman, 10 Turnpike St., Canton, Mass., Student

William R. Latham, Jr., P. O. Box 623, Fort Valley, Ga., District Supervisor, Engineering Division, State Board of Health

Benn J. Leland, Dept. of Public Health, Springfield, Ill., Sanitary Engineer, State Dept. of Public Health

Jack B. Nickel, 201 State House Annex, Indianapolis, Ind., Assistant Engineer, State Board of Health

Forrest W. Rhodes, C.E., State Capitol, Atlanta, Ga., Division Engineer, State Board of Health

R. T. Richey, Box 445, Victoria, Tex., District Sanitary Engineer, State Dept. of Health

Fred A. Safay, Box 210, Jacksonville, Fla., Director, Bureau of Sanitation, State Board of Health

Gerrit A. Schroeyers, C.E., 6 Montebellostreet, Antwerp, Belgium, Engineer, Antwerp Waterworks

William B. Snow, Box 105, Dawson, Ga., Supervisor, Sanitary Engineering Division, State Board of Health

William C. Tebay, City-County Health Dept., Wheeling, W. Va., State District Milk Inspector

William G. Weller, Sevierville, Tenn., Sanitarian, Sevier County Health Dept.

H. F. Wiedeman, C.E., 1404 Candler Bldg., Atlanta, Ga., Consulting Engineer

Industrial Hygiene Section

Philip E. Fisher, Bureau of Industrial Hygiene, Dept. of Health, Detroit, Mich., Sanitary Engineering Aide

Iwao M. Moriyama, Ph.D., C.P.H., 290 Congress Ave., New Haven, Conn., Research Engineer, John B. Pierce Laboratory of Hygiene

Edmond T. Roetman, State Health Dept., Charleston, W. Va., Assistant Industrial Hygiene Engineer

Dorothea H. Scoville, M.D., 40 Channing St., New London, Conn., Physician, Connecticut College

Food and Nutrition Section

Morris Bruckman, 1730 Andrews Ave., New York, N. Y., Inspector of Foods, Dept. of Health

Jules S. Cherniak, 510 W. 110 St., New York, N. Y., Inspector of Foods, Dept. of Health

Grant M. Dickerson, 36 Witter Ave., Wellsville, N. Y., Inspector of Foods, New York City Dept. of Health

Harold S. Pierce, 611 E. Second St., Brooklyn, N. Y., Inspector of Foods, Dept. of Health

Joseph J. Schiftner, 6250 Saunders St., Rego Park, N. Y., Inspector of Foods, New York City Dept. of Health

William H. Sebrell, Jr., M.D., National Institute of Health, Washington, D. C., P. A. Surgeon, U. S. Public Health Service

John M. Sharf, 224 Southern Bldg., Washington, D. C., Technical Service Director, American Bottlers of Carbonated Beverages

Louis Yonofsky, 1662 Cropsey Ave., Brooklyn, N. Y., Food Inspector, Dept. of Health

Child Hygiene Section

Augustine W. McGarry, M.D., 482 Commonwealth Ave., Boston, Mass., Medical Inspector, City Health Dept.

Nathan Millman, M.D., 404 Avenue C, Brooklyn, N. Y., School Medical Inspector, Dept. of Health

John M. Saunders, M.D., C.P.H., State Health Dept., Nashville, Tenn., Associate Director, Maternal and Child Hygiene

Public Health Education Section

Miriam M. Ferguson, M.D., 75 Maple, Hornell, N. Y., Medical Inspector, Public Schools

Vernon D. Irwin, D.D.S., Millard Hall, Univ. Campus, Minneapolis, Minn., Superintendent, Dental Health Education, State Dept. of Health

Mildred F. Patterson, Savannah, Tenn., Clerk, Hardin County Health Dept.

Alton Richards, 29–33 165 St., Flushing, N. Y., Hygiene Teacher, College of the City of New York

Walter G. Saunders, M.D., D.P.H., North Vancouver, B. C., Canada, Director, North Vancouver Health Unit

Frederick G. Scovel, M.D., P'ai Fang St., Tsining, Shantung, China

Public Health Nursing Section

Rosa V. Anderson, R.N., P. O. Box 514, Albany, Ga., District Supervising Nurse, State Board of Health

Lodema J. Brown, R.N., c/o Walker, Pokatello, Idaho, Public Health Nurse, Bannock County Health Unit

Margaret D. Ford, R.N., 914 Highmarket St., Georgetown, S. C., County Nurse, Georgetown County Health Dept.

Ruth G. George, R.N., 2129 Santee Ave., Columbia, S. C., Public Health Nursing Consultant, State Board of Health

Margaret L. Giles, Flovilla, Ga., District Advisory Public Health Nurse, State Board of Health

Edna S. Gould, R.N., Marlette, Mich., Staff Nurse, Sanilac County Health Dept.

Alice O. Helseth, Highlands County Health Dept., Sebring, Fla., County Nurse

Anna T. Hooley, State Office Bldg., Albany, N. Y., Assistant Director, Division of Public Health Nursing, State Dept. of Health

Clara P. Howard, Box 475, Preston, Idaho, Staff Nurse, State Division of Health

Lydia H. Keller, R.N., Martin, S. D., County Public Health Nurse

Gretel R. Kepner, P. O. Box 3119, Honolulu, T. H., Public Health Nurse, Palama Settlement

Minnie H. Lathrop, P. O. Box 537, Waycross, Ga., District Tuberculosis Nurse, State Dept. of Health

Idonna Nuttall, R.N., 809 W. Center, Pocatello, Idaho, Public Health Nurse, Bannock County Health Unit

Hilda K. Pedley, 312 F Ohua, Honolulu, T. H., Public Health Nurse, Board of Health

Ruth E. Peters, 157 N. Ranney, S. Keston, Mo., Public Health Nurse

Nora R. Rolf, 1423 W. 26 St., Minneapolis, Minn., Field Advisory Nurse, State Board of Health

Epidemiology Section

Abraham D. Rubenstein, M.D., 30 Lawton Ave. Lynn, Mass., Epidemiologist, State Dept. of Health

Irving Teitelbaum, M.D., 279 Hinsdale St., Brooklyn, N. Y., Clinic Physician, Dept. of Health (WPA)

Ralph Gregg, M.D., P. O. Box 57, Gallipolis, O., Passed Assistant Surgeon, U. S. Public Health Service

Wilfrid L. J. McDonald, M.D., State Dept. of Health, Albany, N. Y., Epidemiologist-in-training

Bernard M. Blum, M.D., State Dept. of Health, Albany, N. Y., Epidemiologist-in-training

Harold W. Brown, M.D., Sc.D., Dr.P.H., Malaria Research Laboratory, Savannah, Ga., Passed Assistant Surgeon, U. S. Public Health Service

Donald V. Cooney, M.D., 41–13–157 St., Flushing, N. Y., Epidemiologist-in-training, State Dept. of Health

John M. Wheelis, Jr., M.D., Bureau of Medicine & Surgery, Washington, D. C., Medical Officer, U. S. Navy

Unaffiliated

Florence V. Ralston, M.D., 247 Mt. Hope Place, New York, N. Y., Supervising Medical Inspector, Dept. of Health

Clair E. Trontman, M.D., 55 S. Main, Marion, N. Y., Student

AMERICAN MUSEUM OF HYGIENE

GRANTS from the Carnegie Corporation of New York and the Josiah Macy, Jr. Foundation have been made to the Association for the general purposes of its Committee on American Museum of Hygiene. This committee was created by the Executive Board in 1931 to carry out the policies of the Association which were expressed by a general Association resolution at its Annual Meeting in 1930.

Working under these grants the committee will undertake the basic studies which will serve as a guide to the groups in several cities which are now considering the establishing of such institutions. In addition, the Association committee, working in collaboration with the Advisory Committee on Medicine and Public Health for the New York World's Fair, will undertake the development of the medical and public health exhibits for the Fair with the expectation that some of these exhibits may become part of a permanent museum of hygiene.

Homer N. Calver, formerly Executive Secretary of the Association, and the secretary of the committee, has been appointed to direct this work.

Benjamin C. Gruenberg, Ph.D., has been appointed temporarily as research consultant.

EXTENSION OF THE RURAL HEALTH CONSERVATION CONTEST TO CANADA

ARRANGEMENTS have been completed for the inclusion of Canada in the Rural Health Conservation Contest which is financed by the W. K. Kellogg Foundation and is conducted annually by the Chamber of Commerce of the United States and the American Public Health Association. This will make possible the participation in the Contest of all full-time health units existing in the Dominion. For the present, Canada will be considered as one district so that Canadian units will compete only against other units in Canada. At the present time, there is a total of 47 health units under full-time service in the different Provinces, viz: 4 in British Columbia, 2 in Alberta, 3 in Manitoba, 1 in Ontario, 31 in Quebec, 5 in New Brunswick and 1 in Prince Edward Island.

The enrollment of Canadian units is to be made through the Canadian Public Health Association which is coöperating with the American Public Health Association, but the office and field service for Canada will be from the American Public Health Association just as it now is for the United States.

It is expected that this extension of the Contest will be of definite service to the Canadian provinces, and further cement the good will and interchange of ideas which have so long existed between the United States and the Dominion in their public health activities.

RESOLUTION ON THE DEATH OF GUSTAV OBERLAENDER *

WHEREAS the Committee on the American Museum of Hygiene of the American Public Health Association and the entire field of public health has suffered a distinct loss in the passing of Gustav Oberlaender, founder of the Oberlaender Trust; and

WHEREAS through his vision, his beneficence, and his keen appreciation of social and human values he has exerted a wide and lasting influence on the public welfare, now be it

RESOLVED that this resolution be entered in the permanent records of the Committee on the American Museum of Hygiene and that copies be sent to his widow, to the Surgeon General of the United States Public Health Service, and to the Directors of the Oberlaender Trust.

* Adopted by the Committee on American Museum of Hygiene of the American Public Health Association at a meeting held on April 2, 1937.

NEWS FROM THE FIELD

NEW HEALTH CENTER IN NEW YORK

MAYOR Fiorello H. LaGuardia of New York City laid the cornerstone of the Kips Bay-Yorkville Health and Teaching Center, 411 East 69 Street, after a civic luncheon held at the New York Hospital, May 10. In speaking on the occasion, John L. Rice, M.D.,* Commissioner of Health, pointed out that this was a coöperative plan through which health and teaching centers would be set up in connection with the five medical schools in Metropolitan New York, and closely integrated with the work of the thirty health districts. Under this program it is proposed that medical colleges would offer students courses in public health practice and preventive medicine much closer to reality than before.

This is the ninth building which has been started under the plan of the New York City Department of Health to create thirty full-time health districts through which the activities of the City Department of Health would be handled on a decentralized program. Other speakers included Wilson G. Smillie, M.D.,* Professor of Public Health-elect, Cornell University Medical College, James Alexander Miller, M.D., President of the New York Academy of Medicine, Bailey B. Burritt,† Chairman of the District Health Committee, and Livingston Farrand, M.D.,* President of Cornell University.

MEDICAL COLLEGE OF VIRGINIA SUMMER SCHOOL

THE 1937 Saint Philip Post-graduate Clinic for Negro Physicians (for physicians from all states) is to be held at the Medical College of Virginia, Richmond Va., June 14–26.

* Fellow A.P.H.A.
† Member A.P.H.A.

SAFETY CONTEST WINNERS

THE first prize in the Fifth Annual Traffic Safety Contest conducted by the National Safety Council for 1936 was won by New York City; 1,013 cities took part in the contest. New York City was also first in the group of cities of populations larger than 500,000; Milwaukee was the winner in this group in 1935.

First places in other population groups were as follows: Kansas City, Mo., cities from 250,000 to 500,000; Omaha, cities from 100,000 to 250,000; Jackson, Mich., cities from 50,000 to 100,000; West New York, N. J., cities from 25,000 to 50,000; Wilmette, Ill., cities from 10,000 to 25,000. The judges named a special honor roll of 139 cities that had passed the year without a single traffic fatality. West New York was the largest of these.

New York had 838 traffic accident deaths, 12.2 per cent lower than its 1935 total of 954, and 17 per cent lower than the average total for the three preceding years. . . .—*J.A.M.A.*, April 17, 1937, p. 1350.

MARYLAND CONFERENCE

THE Seventeenth Annual Conference of Health Officers and Boards of Health of Maryland was held on May 14 at the Johns Hopkins School of Hygiene and Public Health. The program was devoted largely to the discussion of current problems of communicable disease control and to measures for the promotion of the health of mothers and young children through federal and state coöperation.

Presiding officers were: R. H. Riley, M.D., Dr.P.H.,* Director of the State Department of Health, and Huntington Williams, M.D., Dr.P.H.,* Health Commissioner of Baltimore.

YELLOW FEVER VOLUNTEER DIES

CHARLES G. Sonntag, of Jackson, S. C., one of the volunteers who submitted to inoculation with yellow fever through mosquito bites in the experiment conducted by Major Walter Reed in Cuba in 1900–1902, recently died, at the age of 64.

He has been a farmer for many years. In 1931 he received a gold medal authorized by Congress in recognition of his service in the yellow fever experiment.

BOARD TO RECOMMEND HEALTH OFFICERS

MAYOR Fiorello H. LaGuardia of New York City, President of the United States Conference of Mayors, has appointed a board to recommend public health officers for appointment.

Joseph W. Mountin, M.D.,* of the U. S. Public Health Service, Washington, D. C., is chairman of the board. Other members are: Allen W. Freeman, M.D.,* of Baltimore; Wilson G. Smillie,* of Boston; Huntington Williams, M.D.,* of Baltimore, and John L. Rice, M.D.,* of New York.

PNEUMONIA AND VENEREAL DISEASE STUDIES

A COMMISSION has been appointed by the Medical Society of the State of Pennsylvania, Erie, Pa., for the study of pneumonia control. A commission has also been appointed on the control of syphilis and venereal diseases.

WILL ROGERS MEMORIAL HOSPITAL

THE former National Vaudeville Artists Sanatorium at Saranac Lake, N. Y., became officially the Will Rogers Memorial Hospital on February 25, when Will Hays presented the deed to Jesse H. Jones, Treasurer of the Will Rogers Memorial Commission.

PROPOSED NATIONAL DEPARTMENT OF HEALTH

THE Michigan State Medical Society adopted a resolution recommending, in the event of any reorganizing process affecting the U. S. Public Health Service, the creation of a department of public health in the national government, to include all activities in the field of preventive medicine now performed by the various departments. This action was taken in support of a similar action of the Board of Trustees of the American Medical Association at a meeting early in January. The society further recommends that the supervision and direction of such a department should be in the hands of a competently trained physician, experienced in executive administration.—*J.A.M.A.*, April 10, 1937, p. 1268.

ENGINEERING LIBRARY

ON May 7, the John H. Gregory Sanitary and Municipal Engineering Reference Library was opened in Columbus, Ohio. This library comprises the professional volumes of the late John H. Gregory, Professor of Civil and Sanitary Engineering at Johns Hopkins University, Baltimore, who was Consulting Engineer for 22 years with the city of Columbus, Ohio.

INDUSTRIAL HYGIENE LABORATORY

A LABORATORY to carry on scientific and industrial work in chemical, bacteriologic and public health problems was recently incorporated in New York City under the "Laboratory of Industrial Hygiene." William H. Park, M.D.,* is President. The service at present includes units for certified milk, vitamin testing, clinical diagnosis, chemistry, and bacteriology.

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* Fellow A.P.H.A.

CANADIAN HEALTH CONSERVATION CONTEST

THE Canadian Public Health Association has arranged to conduct a public health conservation contest for rural areas with full-time health service, in coöperation with the American Public Health Association.

The project in Canada, as in the United States, is financed by a grant from the W. K. Kellogg Foundation.

A fact-finding schedule taken principally from the *Appraisal Form* published by the A.P.H.A. will be used and field service will be furnished from the full-time staff of the A.P.H.A.

The first contest will be held in the spring of 1938. Albert Grant Fleming, M.B.,* of Montreal, is Chairman of the Committee and John T. Phair, M.B., D.P.H.,* of Toronto, is Secretary.

GEORGIA PUBLIC HEALTH ASSOCIATION

THE Georgia Public Health Association held its annual meeting in Atlanta, Ga., April 2–4, with the largest attendance in its history. Great enthusiasm was shown by those engaged in public health work in Georgia over the increased appropriation to the Georgia State Board of Health during the recent session of the Georgia Legislature. Governor E. D. Rivers delivered a talk on the improvement of health conditions throughout the state, and pledged his continued support in securing adequate appropriations.

The first two days were devoted to general papers on public health work, and the last day to round table discussions of the 3 sections—medical, nursing, and engineering.

The following officers were elected for 1937–1938:

Dr. W. W. Brown, *President*
W. H. Weir, *Vice-President*
Dr. M. E. Winchester, *Secretary-Treasurer*

* Fellow A.P.H.A.
† Member A.P.H.A.

NATIONAL EDUCATION ASSOCIATION

THE National Education Association will hold its Annual Meeting in Detroit, Mich., June 28–30. The program will be concerned particularly with the health of the school child.

Among the speakers will be:

Isaac A. Abt, M.D.*—Northwestern University, Evanston, Ill.
Haven Emerson, M.D.*—College of Physicians and Surgeons, Columbia University, New York, N. Y.
C. H. McCloy, M.D.—President, American Physical Education Association, Ann Arbor, Mich.
John Sundwall, M.D.*—President, School Physicians Association, Ann Arbor, Mich.

PERSONALS

A. R. HEATH, inspector in the bureau of foods, drugs and hotels of the Kentucky State Department of Health, has been appointed as of May 1 to direct the field service of the Public Health Committee of the Cup and Container Institute, New York, N. Y. Mr. Heath, while on leave of absence from the Kentucky department, in his new position will assist local health departments undertaking, or planning to undertake, sanitary programs in public eating and drinking places.

DR. LOUIS LEHRFELD has resigned as Epidemiologist of the Philadelphia Department of Public Health, after 22 years' service.

THOMAS MILTON RIVERS, M.D.,† has been appointed by the Board of Scientific Directors of the Rockefeller Institute for Medical Research, as Director of the Department of the Hospital of the Institute, succeeding Rufus Cole, M.D.,† who will on June 30 reach the age of retirement. Dr. Cole has been Director of the hospital since its founding in 1910. Dr. Rivers was associate in the bacteriological department of Johns Hopkins Medical School before he

became associate in the Rockefeller Institute hospital in 1922.

HARRY S. MUSTARD, M.D.,* Associate Professor of Public Health Administration, School of Hygiene and Public Health, Johns Hopkins University, has resigned to accept the position of Hermann M. Biggs Professor of Preventive Medicine, New York University, effective September, 1937.

WILLIAM H. PARK, M.D.,* Director of Laboratories in the New York City Department of Health, has been awarded the George M. Kober Medal by the Association of American Physicians. Dr. Park was cited for his research work in infectious diseases.

RUFUS COLE, M.D., D.Sc.,† Director of Hospitals of the Rockefeller Institute, was chosen to be the recipient of the medal next year.

EARLE G. BROWN, M.D.,* has been appointed Health Officer of Arlington County, Virginia, effective May 17. Dr. Brown resigned in May as Secretary of the State Board of Health in Kansas and Director of the Division of Public Health Education.

MARY AUGUSTA CLARK,* of The National Committee for Mental Hygiene, New York City, was honored "for signal contribution to Mount Holyoke College" and received a medal specially struck for the occasion. This citation was presented by President Mary E. Woolley at the Centenary Celebration at South Hadley, Mass., on May 7.

BERTHOLD S. POLLAK, M.D.,† for 30 years Medical Director of the Hudson County Tuberculosis Hospital, Secaucus, N. J., is to be Medical Director of a new tuberculosis hospital in the Jersey City Medical Center, now nearing completion.

JAY D. DUNSHEE, M.D.,* Public Health Adviser in the Department of Public Welfare of Idaho, Boise, has been appointed Director of the Division of Public Health, created recently by state legislature.

CARL S. PEDERSON, PH.D.,† Chief of Research in Bacteriology at the New York State Agricultural Experiment Station, Geneva, N. Y., has recently returned from a 3 month leave of absence granted to study fermentation problems in sugar factories located in the province of Camaguey, Cuba.

ROBERT KNOX GALLOWAY, M.D.,† of Franklin, Tenn., recently Health Officer of Williamson County and City Health Officer of Franklin, Tenn., has been appointed Director of Health and Hygiene in the public schools of Nashville.

HESTER B. CURTIS, M.D., M.P.H.,† of the New York State Department of Health, at Albany, N. Y., has been appointed to take charge of the Division of Child Health in the Bureau of Public Health of New Mexico.

ROBERT B. WOLFORD, M.D.,† formerly of Wichita Falls, Tex., has been appointed Director of the Bureau of Communicable Diseases of the Texas State Department of Health.

VERNE K. HARVEY, M.D.,† of Indianapolis, Ind., has been reappointed Director of the Indiana State Board of Health.

DEATH

VICTOR MILDENBERG, M.D.,† of Jamaica, N. Y., died April 13. He was Medical Inspector-in-Charge of the Jamaica districts of the New York Department of Health.

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* Fellow A.P.H.A.
† Member A.P.H.A.

CONFERENCES AND DATES

American Academy of Tuberculosis Physicians. Atlantic City, N. J. June 7–8.

American Association for the Advancement of Science. Denver, Colo. June 21–26.

American Association of School Physicians. Annual Meeting in conjunction with Annual Meeting of the American Public Health Association. Hotel Pennsylvania, New York, N. Y. October 5–8.

American College of Surgeons. Chicago, Ill. October 25–29.

American Committee on Maternal Welfare, Inc. Luncheon meeting. Hotel Dennis, Atlantic City, N. J. June 9.

American Dental Association. Atlantic City, N. J. July 12–16, 1937.

American Heart Association. Atlantic City, N. J. June 7–8.

American Home Economics Association—30th Annual Meeting. Muehlebach Hotel, Kansas City, Mo. June 21–25.

American Hospital Association. Atlantic City, N. J. September 13–17.

American Medical Association—Eighty-eighth Annual Session. Atlantic City, N. J. June 7–11.

American Public Health Association—Sixty-sixth Annual Meeting. New York, N. Y. October 5–8.

American Radium Society. Atlantic City, N. J. June 7–8.

American Society of Clinical Pathologists. Philadelphia, Pa. June 2–6.

American Society of Heating and Ventilating Engineers—Semi-Annual Meeting, 1937. New Ocean House, Swampscott, Mass. June 24–26.

American Society of Medical Technologists. Atlantic City, N. J. June 7–9.

American Therapeutic Society. Atlantic City, N. J. June 4–5.

Canadian Public Health Association. Chateau Laurier, Ottawa, Ont. June 17–19.

Canadian Tuberculosis Association. Chateau Laurier, Ottawa, Ont. June 17–19.

Fifth International Congress of Radiology. Chicago, Ill. Sept. 13–17.

Health Officers and Public Health Nurses Annual Conference, under the auspices of the New York State Department of Health. Grand Union Hotel, Saratoga Springs, N. Y. June 22–24.

International Association of Milk Dealers. Dallas, Tex. Oct. 21–23.

Medical Society of New Jersey. Atlantic City, N. J. June 1–5.

Medical Women's National Association. Atlantic City, N. J. June 6–8.

National Association of Insecticide and Disinfectant Manufacturers, Inc. Chicago, Ill. June, 1937.

National Education Association. Detroit, Mich. June 28–30.

National Tuberculosis Association—Milwaukee, Wis. May 31–June 3.

National Tuberculosis Association—Los Angeles Institute for the Training of Tuberculosis Workers. Los Angeles, Calif. June 15–30.

New England Health Education Association. Annual Meeting. Massachusetts Institute of Technology, Cambridge, Mass. June 4–5.

Ontario Health Officers' Association. Chateau Laurier, Ottawa, Ont. June 17–19.

Pennsylvania Sewage Works Association—11th Annual Conference. State College, Pa. June 21–23.